

# Subject Index to Volume 254

## A

A23187: *see* Ionophore A23187  
ACE: *see* Angiotensin-converting enzyme  
4-Acetamido-4'-isothiocyanostilbene-2,2'-disulfonic acid, basolateral ion sensitive to, proximal convoluted tubules, F828  
Acetate, acute effects, glucose kinetics, E175  
Acetazolamide  
  ANP effects, papillary collecting duct, F477  
  basolateral ion sensitive to, proximal convoluted tubules, F828  
  bicarbonate secretion, measurement of, colonic, C383  
Acetylcholine  
  cholinergic neurotransmission, corpus cavernosum, H459  
  contractile motility and, common bile duct (guinea pig), G819  
  coronary dilation induced by, endothelial recovery after, H1081  
  high dose, fluid secretion and energy supply in mandibular gland, G781  
  histamine release and, somatostatin effects (toad), G531  
  intracellular calcium, eccrine sweating, C310  
  measurement, vascular pressure-volume relations, H115  
  pancreas, phosphorus nuclear magnetic resonance, G575  
  receptors: *see* Receptors  
  release, cholinergic neurotransmission and, antral muscle, G201  
  vasomotion, cerebral microcirculation, awake state, H67  
Acetyl glyceryl ether phosphorylcholine, glucose kinetics, E193  
Acid, excretion, glucagon effects, F762  
Acid-base balance  
  ammonium absorption and, distal colon, F657  
  bicarbonate secretion, measurement of, colonic, C383  
  dissociation, substrate accumulation and pH gradient, mitochondria, F863  
  homeostatic potassium excretion, feeding and fasting (sheep), R357  
  mitochondria, temperature effects, red muscle (carp), R611  
  potassium depletion and, cerebral blood flow, H250  
  sodium chloride absorption, ileum, G329  
Acidification  
  proximal, flow dependence of bicarbonate transport, F851  
  tubular, salicylate transport, F554  
  urinary  
    electrolyte transport and, distal tubule (salamander), F80  
    glucagon effects, F762  
    proton-translocating ATPase, kidney medulla, F71  
Acidosis  
  bone proton flux and, neonate, F306  
  contractile response, catecholamines (chick), H20  
  extracellular, calcium uptake effects, proximal tubules, C839

## metabolic

  chloride depletion, AVP and renal concentrating defect in, F15  
  induced hypercapnia and (turtle), R944  
  substrate accumulation and pH gradient, mitochondria, F863  
  plasma renin and plasma aldosterone dissociation, dietary glycine hydrochloride effects, E187  
respiratory  
  renin, ACTH, and aldosterone during, awake state, R431  
  rubidium absorption, distal colon, G898  
  sodium chloride absorption, ileum, G329  
  Acridine orange, sodium-calcium exchange and, sarcolemmal vesicles, C441  
ACTH: *see* Adrenocorticotropin  
Actin  
  tight junctions and, T84 monolayers, G416  
  vascular smooth muscle cell, seeding density and time effects, C235  
α-Actin, cytochrome c mRNAs and, atrophied skeletal muscle, C651  
Actinomycin D, calcium effects and, phosphate transport, kidney epithelium (opossum), F217  
Acyl coenzyme A esters, adaptive changes, brown fat during cold acclimation (hamster), E181  
Adenine, folate uptake and, placenta (guinea pig), C735  
Adenine nucleotides  
  aging, exercise and diet effects, heart, H599  
  metabolism, endothelial cells, hypoxia effects (pig), H223  
Adenosine  
  autoregulatory escape and (piglet), G560  
  blood flow and, choroid plexus, H286  
  blood flow increase, ethanol-induced, G495  
  cell nucleotide levels and, kidney tubules, F311  
  handing, interstitia of cremaster muscle, H369  
  inhibition, blood flow autoregulation, intestinal (swine), G156  
  insulin-stimulated glucose uptake and, myocardial, H970  
  interstitial transudate concentration, heart, H1125  
  left ventricular interstitial fluid, during catecholamine stimulation, H207  
  release, endothelial, during hypoxia and metabolic inhibition (pig), H223  
  vasomotion, cerebral microcirculation, awake state, H67  
Adenosine deaminase  
  autoregulatory escape and (piglet), G560  
  coronary functional hyperemia and, nor-epinephrine-induced, H417  
  coronary vasodilation and, global myocardial hypoxia (guinea pig), H1004  
Adenosine monophosphate, cyclic  
  activation induced by, epithelial sodium channels, C802  
  activation of potassium ion conductance, basolateral membrane, bladder (toad), C816

## ADH and, collecting tubule response, calcium effects, F240

calcium absorption and, renal thick ascending limbs, F62  
calcium and  
  action in collecting tubule, F240  
  phosphate transport, kidney epithelium (opossum), F217  
  stimulus-secretion coupling, parietal cell, C130  
chloride channel, secretory cells, C505  
collecting tubule response and, arginine vasopressin, F512  
inotropy and gap junction conductance, cardiac myocytes, H1206  
insulin release and, E454  
intracellular calcium  
  eccrine sweating, C310  
MDCK cells, F374  
involvement, lithium-induced polyuria, R863  
lipoprotein lipase, brown fat, E155  
phosphodiesterase activity and, hepatocytes, E449  
protein kinase dependent on, inhibition by H-8, C115  
protein phosphorylation induced by, basolateral membrane, lacrimal gland, G543  
stimulation induced by, sodium-potassium pump (bulldog), C84  
vasopressin effects, cortical collecting tube, F739  
Adenosine triphosphate  
  calcium homeostasis and, islet endoplasmic reticulum, E121  
myofibrillar, oxidative potential, muscle fiber types, C661  
proton-translocating, kidney medulla, F71  
Adenosine triphosphate  
  calcium and, resting tension, heart, H678  
cell nucleotide levels and, kidney tubules, F311  
chloride transport dependent on, membrane vesicles from intestine (seahare), R127  
different catabolism, adult and newborn hearts, H1091  
extracellular acidosis effects, proximal tubules, C839  
fluid secretion and energy supply, mandibular gland, G781  
hypoxia effects, aortic endothelial cells (pig), H223  
intracellular, vanadate and fluoride effects, giant axon (squid), C582  
*Limulus* photoreceptors, C27  
magnesium-chloride and, pretreatment, ischemia-reperfusion injury, H702  
metabolism, skeletal muscle, C417  
5'-nucleotidase inhibited by, kidney, F191  
pancreas, phosphorus nuclear magnetic resonance, G575  
S-Adenosylmethionine, distribution, intestinal adaptation and, G194  
Adenylate cyclase  
  activity, dietary fat effects, testes, E708  
  food restriction effects, during aging, liver, E54

Adenylate cyclase (continued)  
 inhibition by prostaglandin, proximal tubules, C304  
 phorbol ester effects, collecting tubular cells (toad), C183  
 vasopressin effects, cortical collecting tube, F739

Adenylate kinase, scaled model, metabolic control analysis, R949

ADH: see Antidiuretic hormone

Adipocytes  
 brown  
 $\beta$ -adrenergic stimulation of proliferation, C175  
 phorbol esters, protein kinase C, and thyroxine 5'-deiodinase in, E323  
 endocytosis, cell surface insulin binding and, E365  
 insulin-receptor recycling, defect in, E39 selective uptake, HDL cholesterol ester, E667

Adipose tissue  
 brown: *see* Brown fat  
 glycogen synthase regulation, fasting and refeeding, E720  
 morphology and cell dynamics, hypothalamic obesity, R740  
 white, glucose utilization, obesity and, E342

Adrenal cortex, renin, ACTH, and aldosterone, hyperventilation and hypoxia, awake state, R431

Adrenalectomy  
 bilateral, delayed extra-adrenal epinephrine secretion after, E52  
 fasting and diabetes, muscle branched-chain  $\alpha$ -keto acid dehydrogenase and, E292  
 glucocorticoids, renal ammoniagenesis and, F134  
 renin substrate release and, liver slices, E389

Adrenal gland  
 ACTH and cortisol secretion, vasopressin effects, fetus (sheep), R410  
 cardiovascular function and, fetus (lamb), R706  
 corticosterone, feeding patterns and, R222  
 field stimulation, angiotensin II facilitation of, R95  
 transplant, calcium and aldosterone in (sheep), E566

Adrenal glomerulosa cells, potassium permeability, angiotensin II and, E144

Adrenal medulla  
 chromaffin cells, membrane potentials, C675  
 endurance, hepatic fructose 2,6-bisphosphate and, R572  
 epinephrine secretion, after bilateral adrenalectomy, E52  
 hemodynamic response to hemorrhage and naloxone, R559  
 $\alpha_1$ -Adrenergic agonists, brown adipocytes, E323

Adrenergic mechanisms  
 vascular control, newborn (pig), H671  
 vasoconstriction, H984

Adrenergic nerves, carotid artery, endothelium inhibition of norepinephrine release, H871

Adrenergic response, exercise, isoproterenol and, R834

$\beta$ -Adrenergic stimulation, proliferation, brown adipocytes, C175

Adrenocorticotropin  
 aldosterone secretion and, E243  
 control, corticosteroids, R23  
 cortisol and, fetal secretion, arginine vasopressin effects (sheep), R410  
 exercise and, hypoxia effects, R197  
 metallothionein and, basal and stress conditions, E71  
 renin and aldosterone, acute hyperventilation and hypoxia, awake state, R431  
 ventromedial hypothalamic lesions, radio-frequency vs. electrolytic, R917

Adrenomedullation, endurance, fructose 2,6-bisphosphate and, liver, R572

Afferent nerves  
 intestinal, cardiovascular function and, H354  
 neural activity, penis, R989  
 renal  
 $\quad$  pressor responses, paraventricular nucleus, R325  
 $\quad$  spinoreticular cell responses to, R268  
 sympathetic, stimulation, renal nerve and cardiovascular response, R192  
 vagal, hypotension and (monkey), R857

Afterload: *see also* Load  
 left ventricle, optimal matching, H1051  
 resistance: *see* Resistance

Aging  
 adenylate cyclase, food restriction effects, liver, E54  
 central interleukin 1, acute phase responses, melanocyte-stimulating hormone and, R401  
 cold-induced thermogenesis, following exercise training, R908  
 exercise and feeding effects, heart, H599  
 gastrin levels and trophic action, G538  
 head-out water immersion and, renal and endocrine responses, R977  
 insulin action changes, euglycemic clamp, awake state, E92  
 intestinal absorption of aromatic acids and, G630  
 metabolic responses to stress and, E617  
 prostaglandins, gastric mucosal response to hydrogen and, G142  
 thermogenesis, cold- and norepinephrine-induced, R457  
 training status and, heart rate recovery after exercise, H340

Airway  
 epithelium, secretory and absorptive, ion transport, C535  
 resistance: *see* Resistance  
 smooth muscle cells, calcium currents in, C793

Alanine  
 absorption and metabolism, jejunum, G264  
 gluconeogenesis and, during exercise and recovery, E518  
 $^3$ H-labeled, insulin effects on production, fasting and, E700  
 transport, calcium effects, kidney epithelium (opossum), F217  
 uptake, hepatic (pig), G602

L-Alanine  
 hepatocyte transmembrane potential, amino acid transport and, G795  
 uptake, hepatocytes, elasmobranch (skate), R801

Albumin  
 binding, specific to microvascular endothelium, H425

ERS, anion uptake and, liver, G463  
 gene transcription, nephrotic liver, E676  
 initial equilibration, hindpaw skin and lymph, H89

plasma, conformational change, hepatocytes, G465

stability and longevity, perfluorochemical-perfused heart, H1105

steroid hormone transport and, uterus, E79

Alcohol, blood flow increase and, portal, G495

Aldose reductase, slow changes, osmoregulation by, C788

Aldosterone  
 diluting segment, amphibian kidney, F615  
 glucocorticoids vs., target tissue, F153  
 inhibition, atrial natriuretic factor, R1011  
 intake, renal pressure-natriuresis, F697  
 levels, extrarenal, parathyroid hormone effects, F385  
 metabolism, time-dependent, urinary bladder (toad), F547  
 metallothionein and, basal and stress conditions, E71  
 pathophysiology of, E1  
 plasma, dietary glycine hydrochloride effects, E187  
 potassium excretion and feeding and fasting (sheep), R357  
 model (sheep), R381  
 production, glomerulosa cells, C744  
 release, during hemorrhage, R204  
 renin and ACTH, acute hyperventilation and hypoxia, awake state, R431  
 response to stimulation by angiotensin II, calcium ion role in (sheep), E566  
 rubidium absorption and, distal colon, G898  
 secretion, osmotic and ionic modulation of, E243  
 sodium channels, bladder cells (toad), C512  
 time-dependent actions, sodium-potassium-ATPase, cortical collecting duct, F689  
 water drinking and, exercise training effects, R417

Algorithms, peak-detection, comparative assessments, E113

Alkali, secretion, duodenal, neural regulation of, G162

Alkaline, intestinal epithelial cell maturation, G355

Alkaline phosphatase  
 mature and immature colonocytes, G610  
 modulation of sodium-potassium-ATPase, liver and ileum, G761

Alkalosis  
 metabolic, substrate accumulation and pH gradient, mitochondria, F863  
 respiratory, renin, ACTH, and aldosterone during, awake state, R431  
 sodium chloride absorption, ileum, G329  
 Allopurinol, importance, *E. coli* endotoxemia, H954

N-Allylnormetazocine, opiate receptor agonist sites of action, ileocecal sphincter, G224

## SUBJECT INDEX TO VOLUME 254

**Amiloride**  
aldosterone and, target tissue, colon, F153

**ANP interaction**, renal tubular sodium handling, F521

**bicarbonate transport and, acid-secreting epithelium (locust)**, R348

**inhibition**  
Friend murine erythroleukemic cell differentiation, C122

sodium transport, epithelial cells (frog), C297

**ornithine decarboxylase activity**, DNA synthesis and, G408

**sodium-calcium exchange and, sarcoplasmic vesicles**, C441

**sodium channels blocked by, bladder cells (toad)**, C512

**sodium flux blockable by, epithelial sodium channels, cAMP in**, C802

**sodium-hydrogen exchange**  
neutrophil phagosomes, C272

serotonin effects on calcium and, enterocytes (chicken), G891

ursodeoxycholic acid choleresis and, G232

**sodium-potassium pumping activity sensitive to**, C847

**sodium uptake block**, colonic enterocyte membrane vesicles, C484

**time-dependent actions**, sodium-potassium-ATPase, cortical collecting duct, F689

**Amino acids**  
amino acid transport system, broad scope (sand dollar), R485

constituents, biliary catabolism of glutathione, G1

infusion, renal vasodilatory capacity and, pregnancy, F650

intestinal, ammonia metabolism and, jejunum, G264

metabolism, liver, gut, kidney, and muscle, E588

neutral transport systems, microvillus membrane, placenta, C773

substrate utilization, proximal tubules, NADH fluorescence, F407

transport  
broad-scope (sand dollar), R485

epithelial, interleukin 1 modulation, kidney, F879

hepatocytes, elasmobranch (skate), R801

intestinal, G334

quinine effects, G795

**$\gamma$ -Aminobutyric acid**  
gastric acid and hormone release and, basal and vagally mediated, G723

hypothalamic, sympathetic outflow to cardiovascular system and, awake state, R680

rostral receptors, depressor neuron effects, H686

**Aminoglycosides**, alterations induced by, apical membranes of renal epithelial cell line, C251

**p-Aminohippuric acid**, contraluminal transport system, organic anion secretion, proximal tubules, F453

**Amino-nitrogen**, uptake, during hypoxia, fetus (lamb), E572

**Aminopterin**, folate uptake and, placenta (guinea pig), C735

**Aminopyrine**  
clearance, blood flow and, G281

inositol phosphate and acid secretion, parietal cell, G622

uptake, parietal cell function, G57

**Ammonia**, metabolism, intestinal amino acid and, jejunum, G264

**Ammoniogenesis**, renal, glucocorticoids and, F134

**Ammonium**, absorption, bicarbonate effects, distal colon, F657

**Ammonium compounds**, quaternary, cell volume measurement, C192

**Amylase**  
activity, acid pH, oligosaccharides and, G775

release  
bombsin action and (guinea pig), G883

protein kinase C in (guinea pig), G242

**secretion**  
during feeding, diabetes and, parotid gland and pancreas, G878

individual pancreatic acini, G664

structure-activity relations, G176

secretion and circulation, pancreatic, G849

**VIP-stimulated**, somatostatin inhibition of release, pancreatic acini (guinea pig), G217

**Amyloid P**, cytokines and, acute phase response, G450

**Anabolic agent**, loss of mRNAs and, atrophied skeletal muscle, C657

**Anaphylaxis**  
histamine, intestinal secretion and, C53

intestinal, mucosal ion transport, G307

Androgen, GnRH effects, mating behavior in males, E84

**Anesthesia**  
cardiac output distribution, dehydration and, R109

carotid chemoreceptor, baroreceptor reflexes and, interaction, R1

**Anesthetics**, local, potassium channel noise, colon (turtle), C165

**ANF**: *see* Atrial natriuretic factor; Atriopeptin II

**Angiogenesis**  
coronary, venular endothelial cells, H1211

tumor-promoting phorbol esters and (chick), C318

**Angiotensin**  
aldosterone production and, glomerulosa cells, C744

arginine vasopressin and, cardiovascular effects, pulmonic stenosis, H438

blood flow and, finger, H889

gene expression  
during ACE inhibition, F900

maturing kidney, F582

hyperfiltration and, diabetes, F202

**Angiotensin-converting enzyme**  
inhibition, renin and angiotensin gene expression during, F900

inhibitor, renal nerve, F184

**Angiotensin II**  
activation of sodium-hydrogen exchanger, vascular smooth muscle, C751

aldosterone response to, calcium ion role in (sheep), E566

aldosterone secretion and, E243

blood flow changes and, renal, F470

bradykinin actions and, H1042

**calcium kinetics and, glomerular mesangial cells**, F254

eicosanoid production and, during pregnancy, kidney, E687

**experimental membranous nephropathy and**, F500

facilitation, adrenal field stimulation, R95

**glomerular receptors**, intrarenal renin-angiotensin system modulation of, F345

**hypernatremia and, subfornical organ neurons**, R746

**hypertension and, autoregulation**, H709

**interactions**, renal glomerular sites for, F184

**intrarenal effects**, renal response to atrial natriuretic factor, R453

**neurohumoral interactions**, dehydration, R338

**norepinephrine uptake and, jejunum**, G135

**potassium permeability and, adrenal glomerulosa cells**, E144

**prostaglandin production stimulated by, renal afferent arterioles**, F734

**prostaglandins and, control of blood flow, vasa recta**, F417

**pulmonary hypertension and vascular changes**, H500

**receptor-mediated release**, ANF secretion and, R809

**subfornical organ efferents**, activation of septal neurons, R544

**urinary responses to, drinking and, arterial pressure effects**, R69

**vasopressin and, intracellular pH of glomerular mesangial cells**, F787

**2,5-Anhydro-D-mannitol**, food intake and, R150

**Anions**  
exchange, extracellular and intracellular, skin (frog), F95

**organic**  
interaction with organic cations, renal brush-border membrane vesicles, F56

secretion, proximal tubules, F453

transport, proximal tubule, F554

uptake, liver, G463

**secretion**, adrenergic stimulation of, epididymal epithelium, F121

**Anoxia**  
anaerobic metabolic rate, induced hypercapnia effects (turtle), R944

cellular markers, interstitial transudate, heart, H785

**ANP**: *see* Atrial natriuretic peptide; Atriopeptin II

**Anterior descending artery**, left, risk area size and location, H473

**Anthracene 9-carboxylic acid**, anion secretion and, epididymal epithelium, F121

**Antidiuretic hormone**: *see also* Vasopressin antagonists of, F165

blood flow changes and, renal, F470

calcium and, action in collecting tubule, F240

lectin gold labeling of glycoconjugates and, renal papilla, C450

pseudopregnancy and, osmoregulation, R478

vacuoles induced by, cortical collecting tubule, F719

Antidiuretic hormone (*continued*)  
 water drinking and, exercise training effects, R417

Antioxidant, defense mechanism, intestinal transport and metabolism, G824

Antipolytic agents, lowering of plasma glucose, diabetes, E23

Antipyretic, host response, modulated by melanocyte-stimulating hormone, R401

Antral muscle, cholinergic neurotransmission, somatostatin modulation of, G201

Antrum: *see* Gastric antrum

Aorta  
 endothelial cells, adenosine release, hypoxia and (pig), H223  
 septic, vascular effects of cyclic GMP, R436

Aortic depressor nerve, activation of baro- and chemoreceptors, R331

Aortic nerve, posthemorrhage hypotension, baroreflex compensation, H1074

Aortic valve ring, on-line measurement, during cardiac cycle, H795

AP<sub>4</sub>A: *see* Diadenosine tetraphosphate

AP<sub>5</sub>A: *see* Diadenosine triphosphate

Apical membrane, chloride channels in, colonic cell line, C505

Apolipoprotein B, intestinal epithelial cell maturation, G355

Apomorphine, GI responses, CCK-8 and vomiting comparison, G254

Appendectomy, atrial, sodium excretion and, awake state (monkey), R698

Arachidonic acid  
 calcium homeostasis and, islet endoplasmic reticulum, E121  
 metabolism  
 alveolar macrophages, C809  
 cerebromicrovascular endothelium, C37  
 coronary arterial endothelial cells, C8

Area postrema  
 cardiovascular regulation and, H963  
 reflex inhibition, osmotically released vasopressin effects, R815

Arginase, activity, wounds, E459

Arginine, metabolism, wounds, E459

Arginine deaminase, activity, wounds, E459

Aromatic acids, absorption, intestinal, aging effects, G630

Arrhythmias  
 cardiac  
 arousal from hibernation and (hamster, groundhog, squirrel), R102  
 phase-locked rhythms (chick), H1  
 reperfusion-induced, glucose and mannitol, H862

Arterial bed, systemic, ventricular-systemic coupling, model, H609

Arteries: *see also* specific artery  
 vasomotor activity, AP<sub>5</sub>A and AP<sub>4</sub>A, H828

Arteriography, coronary, FMLP-induced coronary spasm, H481

Arterioles  
 afferent, renal microvessels, F291  
 afferent and efferent, characterization of  $\alpha$ -adrenoceptors, F178  
 density, microspheres, myocardium, H636  
 renal, angiotensin II-stimulated prostaglandin production, F734  
 wall shear rate, H1059

Arteriolar networks  
 sartorius muscle, distribution of vascular resistance, H1149  
 skeletal muscle, response to sympathetic nerve stimulation, H919

Arteriovenous fistula, heart failure, hormonal determinants of sodium excretion, R776

Ascorbic acid, oxidized, intestinal transport and metabolism, G824

D-Aspartate, glucose and amino acid transport, interleukin 1 modulation, F879

Asphyxia, endogenous opioids, awake state, H72

Aspirin: *see also* Salicylate  
 primary hemostasis, platelet-activating factor and, H1218  
 prostaglandin synthesis, after massive small bowel resection, G373

Asynchrony, myocardial relaxation and, rest and exercise, awake state, H817

ATPase: *see* Adenosine triphosphatase; Calcium-ATPase; Hydrogen-ATPase; Hydrogen-potassium-ATPase; Sodium-potassium-ATPase

ATP: *see* Adenosine triphosphate

Atria: *see* Heart atria

Atrial natriuretic factor  
 atrial content of, stretch-induced reduction, R284  
 baroreflex tachycardia and, R590  
 clearance, fetal and adult (sheep), R40  
 exocrine pancreas and, E301  
 glomerular receptor regulation, sodium and water metabolism changes, F51  
 head-out immersion night, R235  
 renal and endocrine responses, R977  
 hemodynamic actions, awake state (sheep), H811  
 hormonal determinants, experimental heart failure, R776

immunoreactive  
 endotoxemia, model (sheep), R567  
 renal response, cardiac denervation and, F780

increased secretion, heart failure and, R185

inhibition of aldosterone and renin, R1011

nephrotic syndrome and, kidney function, F211

opercular epithelium (killifish), R27

renal response to, intrarenal angiotensin II effects, R453

secretion, prohormone release, R809

vascular relaxation and cGMP, hypertension and, H163

water drinking and, exercise training effects, R417

Atrial natriuretic peptide  
 amiloride interaction, renal tubular sodium handling, F521  
 chronic appendectomy effects, sodium excretion, awake state (monkey), R699  
 $\alpha$ -human, increased plasma cGMP after, small intestine, G814  
 hypotensive hemorrhage, renal and endocrine adaptation, R56  
 interrelationships, renin and blood volume, pregnancy, R793  
 micropuncture study of effects, papillary collecting duct, F477

microvascular actions, juxtamedullary nephrons, F440

radioreceptor assay for, plasma, F159 release, atrial pressure effects, R607

renal response  
 ontogeny to (sheep), F634  
 plasma volume and, F562

sodium-potassium-ATPase inhibitor release and, brain, F912

synthetic, plasma clearance and, end-stage renal failure, F895

Atrial natriuretic polypeptide, circulating, sodium load effects, F540

Atria: *see* Heart atria

Atriopeptin, pathophysiology of, E1

Atriopeptin II  
 microvascular actions, juxtamedullary nephrons, F440  
 opercular epithelium (killifish), R27  
 radioreceptor assay for, plasma, F159

Atrioventricular node  
 conduction  
 integration of heart rate and sympathetic neural effects, H651  
 ouabain treatment and, H313

Atropine  
 bicarbonate response and, pancreas, G436  
 capsaicin action, bronchoconstriction, R845

cholinergic stimulation with, calcium metabolism and, parietal cell, C498

GI responses, CCK-8 and vomiting comparison, G254

insulin effects and, postprandial thermogenesis, E625

peptide YY inhibition and, insulin release, E513

release, cholinergic neurotransmission and, antral muscle, G201

Autonomic nervous system  
 gastrointestinal transit, inhibition by calcitonin, G920  
 pulmonary vasoregulation, after hypoperfusion, awake state, H976

Autoradiography  
 blood flow, gastric mucosal, G566  
 CCK receptor, gallbladder, G294  
 comparison of tracers, brain glucose use, E310  
<sup>3</sup>H-thymidine, adipose tissue, hypothalamic obesity, R740  
 ultrastructural, pancreatic acinar cells, E301

Autoregulation  
 glomerular filtration rate, model (chicken), R925

intestinal circulation, developing and postnatal (swine), G189

long-term, intermittent hypoxia effects, embryo (chick), H1194

renal blood flow, chronic glomerulonephritis, F284

tubule response, acute arterial hypertension, F601

AVP: *see* Vasopressin, arginine

AV: *see* Atrioventricular node

Awake state  
 ANF, long-term hemodynamic actions (sheep), H811  
 bacteremia, plasma catecholamines during, R470  
 bacterial shock, myocardial function and, H558  
 blood flow, microsphere estimates of, G274

## SUBJECT INDEX TO VOLUME 254

blood volume and blood pressure, central (monkey), H693  
 hemodynamic response to hemorrhage and naloxone, adrenal medulla role in, R559  
 hemorrhage, cardiovascular and hormonal response, H947  
 hypoperfusion, pulmonary vasoregulation after, H976  
 low-dose infusions of atrial peptides, R161  
 neurohumoral interactions, in dehydration, R338  
 nitroglycerin effects, myocardial collateral conductance, H751  
 nonhypotensive endotoxemia, prostaglandin effects, H509  
 pancreatic secretion, cephalic phase response, G424  
 postischemic dysfunction, time course and determinants, H102  
 pyloric sphincter motility, inductograph method of study, G650  
 renal response to volume expansion, cardiac denervation and, F780  
 renal vascular response, hypoxia and hyperventilation, R552  
 renal venous norepinephrine, renin and, response to sodium depletion, F754  
 rest and exercise, myocardial relaxation, asynchrony effects, H817  
 sodium excretion, chronic atrial appendectomy effects (monkey), R699  
 sodium load effects, circulating atrial natriuretic polypeptide, F540  
 somatostatin extraction, liver, E214  
 sympathetic outflow, cardiovascular system, GABA effects, R680  
 vascular bed responses to vasopressin, after cholinergic blockade, H45  
 vasomotion, cerebral microcirculation, H67  
 vasopressin blockade, blood pressure during water deprivation, E490  
 Axon, sodium-potassium-chloride cotransport, vanadate and fluoride effects (squid), C582

### B

Baclofen, GABA and, gastric acid secretion, G723  
 Bacteremia  
 insulin-stimulated sugar transport, skeletal muscle, R673  
 plasma catecholamines during, awake state, R470  
 Bacterial shock: *see* Shock  
 Balloon, rectal, endorectal stimulation, cerebral evoked potentials, G477  
 Barium  
 electrode sandwich technique, studying potassium transport in renal cells (frog), F608  
 potassium ion conductance and, basolateral membrane, bladder (toad), C816  
 Basement membrane  
 capillary, thickness, chronic portal hypertension, G339  
 epithelial cell maturation, intestinal, G355  
 Basolateral membrane  
 ileal, estrogen effects, G687  
 parotid acinar, chloride-bicarbonate exchange in, C391

potassium conductance  
 colon (turtle), C165  
 urinary bladder (toad), C816  
 potential difference, SITS-sensitive, proximal convoluted tubules, F828  
 protein kinases in, lacrimal gland, G543  
 proximal convoluted tubule, single-channel analysis of potassium channel, F105  
 renal, sodium-independent D-glucose transport, F711  
 vasopressin receptors, downregulation by dehydration, kidney tubules, C404  
 BAY K 8644  
 aldosterone response and, angiotensin II (sheep), E566  
 increased vascular response to, Dahl S kidney, F533  
 Beat-to-beat evaluation, baroreflex, blood pressure monitoring, H377  
 Benszerazide, sodium-potassium-ATPase activity and, kidney tubules, F795  
 Benzyl alcohol, lipid dynamics and, ileal basolateral membrane, G687  
 Bethanechol  
 contraction stimulated by, skinned smooth muscle fibers, G808  
 stimulation of intestinal afferents, cardiovascular function and, H354  
 Bicarbonate  
 gastric mucosal permeability, prostaglandin effects, G378  
 pancreatic response, extrinsic nerves and, G436  
 reabsorption, PTH and calcifediol, pars recta, F45  
 secretion  
 adrenergic stimulation of, epididymal epithelium, F121  
 ammonium absorption and, distal colon, F657  
 distal colon, C383  
 neural regulation, duodenal, G162  
 sodium-hydrogen exchange, ursodeoxycholic acid choleresis and, G232  
 transport  
 acid-secreting epithelium (locust), R348  
 flow dependence of, proximal convoluted tubules, F851  
 tubular absorption, solute polarization during, cortical interstitium, F813  
 urinary, glucagon effects, F762  
 Bicuculline  
 depressor neuron action and, rostral medulla, H686  
 sympathetic outflow and, cardiovascular system, R680  
 Bile  
 amino acids, hepatocytes, elasmobranch (skate), R801  
 flow, CCK-stimulated, glucagon role in, G864  
 formation  
 biliary catabolism of glutathione, G1 ursodeoxycholic acid choleresis, G232  
 Bile acids  
 secretion, Triton WR-1339-induced changes, G346  
 sulfated, calcium interaction, cholestasis and, G644  
 transport, hepatocytes, G269  
 Bile duct  
 common pressure, bombesin and gastrin-releasing peptide effects, G361  
 contractile motility, CCK-8 effects (guinea pig), G819  
 Bile salts  
 arginine vasopressin effects, hepatocytes, G732  
 modulation of sodium-potassium-ATPase, hepatic and ileal, G761  
 Biliary excretion, sulfobromophthalein, R1043  
 Biopsy, percutaneous needle,  $\beta$ -adrenergic receptors, skeletal muscle, E795  
 Bladder cells, cultured, sodium channels in membrane vesicles (toad), C512  
 Bladder: *see* Gallbladder; Urinary bladder  
 Bleeding, time, platelet-activating factor and, H1218  
 Blockade  
 adrenergic  
 glucose kinetics and, bacterial infection, E16  
 hypoglycemia, during exercise, E713  
 PAF effects on glucose kinetics, E193  
 postsynaptic adrenoceptor-mediated vasoconstriction, H984  
 cholinergic, vascular bed responses to vasopressin, H45  
 CNS, by  $\kappa$ -opiate agonist, stress-induced gastric motor inhibition, G802  
 histamine or adenosine, blood flow auto-regulation, intestinal (swine), G156  
 hydrogen-potassium-ATPase, parietal cell function after, G399  
 prostaglandin, natriuresis, renal interstitial hydrostatic pressure and, F507  
 vagal, hypotension and (monkey), R857  
 vasopressin, blood pressure during water deprivation, awake state, E490  
 verapamil, smooth muscle response to oxypressin, R75  
 Blood  
 artificial substitutes, regional cerebral blood flow and, H719  
 constituents: *see* Constituents  
 fetal and maternal, neutral amino acid transport systems, microvillus membrane, placenta, C773  
 intraluminal, loss, 5-lipoxygenase products, G483  
 volume: *see* Volume  
 wave velocity, systemic arterial bed, model, H609  
 Blood-brain barrier, pathogenesis of fever, pattern differences, R633  
 Blood flow: *see also* Circulation; Microcirculation  
 cerebral  
 adrenergic-prostanoid control (pig), H671  
 developmental changes, fetus and newborn (lamb), H52  
 fluorocarbon exchange, H719  
 hemodynamic significance of carotidrete (goat), R770  
 potassium depletion and, H250  
 response to hematocrit, H156  
 vasoactive stimuli effects, H286  
 coronary  
 dilation, endothelial recovery after, H1081  
 myocardial infarct size, dobutamine effects, H855  
 postsynaptic adrenoceptor-mediated vasoconstriction, H984  
 coronary collateral  
 postischemic dysfunction, H102

Blood flow (*continued*)  
 ventricular preload, fetus (lamb), H532  
 cutaneous  
 heat loss, IR thermography, R389  
 vasoconstrictor system effects on leg  
 vasodilation (baboon), H11  
 finger, reflex sympathetic response to  
 cooling, serotonin and, H889  
 gastric mucosal, autoradiography, G566  
 intestinal  
 autoregulatory escape and (piglet), G560  
 histamine or adenosine blockade (swine), G156  
 liver, laser-Doppler flowmetry, G471  
 local, vasoconstrictor-induced hypertension, H709  
 local tissue, spatial heterogeneity, heart, H344  
 microvascular  
 sympathetic escape, skeletal muscle, H929  
 sympathetic nerve stimulation, skeletal muscle, H919  
 new microvessels, regrowth of vasa vasa-  
 rum, H126  
 nitroglycerin effects, awake state, H751  
 organ, thermal dehydration and, R109  
 pituitary, chemoreceptors and, H742  
 portal  
 ethanol-induced increase, G495  
 somatostatin effects, G322  
 regional  
 lactate production in endotoxic shock, E45  
 prostaglandins and, awake state, H509  
 regulation, juxtaglomerular interstitial  
 hypertonicity, F445  
 renal  
 $\alpha$ -adrenoceptor responses (sheep), R277  
 autoregulation, chronic glomerulone-  
 phritis, F284  
 converting-enzyme inhibitor and, vasa  
 recta, F492  
 histamine or adenosine blockade (swine), G156  
 hypoxia and hypercapnia, awake state, R552  
 increased ANF secretion after volume  
 expansion, R185  
 medulla, angiotensin II and prosta-  
 glandin control, F417  
 neurohormonal regulation during de-  
 velopment (sheep), F771  
 response to ANP, F634  
 vasoconstrictor-induced changes, F470  
 skeletal muscle, glucose uptake during  
 exercise, E555  
 splanchnic, microsphere estimates, G274  
 transmural, aortic pressure effects, left  
 ventricle, H361  
 vasopressin effects, after cholinergic  
 blockade, H45  
 velocity, gastric acid secretion and, G281  
 Blood-nerve barrier, perineurium of sciatic  
 nerve, calcium diffusion through  
 (frog), C141  
 Blood pressure: *see also* Pressure  
 adrenal gland and, fetus (lamb), R706  
 $\alpha_1$  and  $\alpha_2$  receptors, electrophysiology, H756  
 ANF actions and, awake state (sheep), H811  
 arterial  
 hemodynamic significance of carotid  
 rete (goat), R770  
 response to ANP, kidney, F634  
 baroreflex, operant and classical condi-  
 tioning, R1025  
 central, awake state (monkey), H693  
 changes, sleep-wake cycle, computer  
 analysis, H217  
 during water deprivation, vasopressin  
 blockade effects, awake state, E490  
 exercise and, hypertensive response, H592  
 glucose kinetics, adrenergic blockade in  
 infection and, E16  
 homeostasis, norepinephrine release,  
 paraventricular hypothalamic nu-  
 cleus, H993  
 humoral inotropic factor, hypertension, H230  
 hypercapnia and hypoxia, renin, ACTH,  
 and aldosterone during, awake state, R431  
 improved techniques for monitoring, H181  
 monitoring, evaluation of baroreceptor  
 reflex by, H377  
 neuropeptide Y injection and, posterior  
 hypothalamic nucleus, H879  
 pathophysiology of atrial peptides and, E1  
 renin forms and, F432  
 response to adrenal field stimulation,  
 angiotensin II facilitation of, R95  
 response to hemorrhage and naloxone,  
 adrenal medulla role in, R559  
 sodium and aldosterone effects, renal, F697  
 sympathetic nerve discharge, dience-  
 phalic regions contributing to, R249  
 vagal block and (monkey), R857  
 vasopressin effects, after cholinergic  
 blockade, H45  
 Blood volume: *see also* Volume  
 adrenal gland and, fetus (lamb), R706  
 ANP, renin interrelations, pregnancy, R793  
 atrial peptides, physiology, E1  
 central, awake state (monkey), H693  
 norepinephrine effects, fetus (sheep), H734  
 sodium retention, hypoproteinemia and,  
 edema, F887  
 static exercise effects, H592  
 systemic, dynamic changes in venous  
 outflow, R212  
 Body  
 composition, aging, exercise, and  
 thermogenesis, R908  
 mass, loss, protein and lipid utilization  
 during fasting (penguin), R61  
 weight: *see* Weight  
 Bombyxin  
 gastric secretion and, basal and stimu-  
 lated (cod), G183  
 gastrin-releasing peptides and, sphincter  
 of Oddi, G361  
 inhibition by substance P agonists  
 (guinea pig), G883  
 secretion, antrum and fundus of stom-  
 ach, G20  
 secretion and circulation, pancreatic,  
 G849  
 Bone  
 mineral metabolism, diabetes and low  
 calcium-phosphorus diet effects, E496  
 properties of, weightlessness effects, R78  
 proton influx into, during acidosis, neo-  
 nate, F306  
 resorption  
 inhibition of, 1,25(OH)<sub>2</sub>D after, E260  
 vitamin D and, E402  
 vitamin D deficiency, embryo (quail), E639  
 Bradycardia  
 cardiac arrhythmias, arousal from hiber-  
 nation and (hamster, groundhog,  
 squirrel), R102  
 vasopressin-mediated, preoptic area role  
 in, H1172  
 Bradykinin  
 cardiopulmonary response, endotoxin  
 administration (sheep), H833  
 immunoreactive, urinary excretion, so-  
 dium balance effects, F484  
 mitochondria-rich cells, medullary col-  
 lecting tubules, F907  
 prostaglandin production stimulated by,  
 renal afferent arterioles, F734  
 stimulation of intestinal afferents, car-  
 diovascular function and, H354  
 vascular actions, kininase II effects,  
 H1042  
 vasoconstriction induced by, placenta,  
 E681  
 Brain  
 arginine vasopressin, enhanced fever  
 after castration, R513  
 blood flow: *see* Blood flow, cerebral  
 cooling, vascular control (reindeer), R730  
 glucose phosphorylation, measurement  
 with labeled glucose, E443  
 glucose use  
 comparison of tracers for, E310  
 obesity and, E342  
 graded hypoxia and hyperoxia, NMR  
 and NADH fluorometric studies  
 (gerbil), C699  
 injury  
 catecholamines, E287  
 fluid-perfusion, <sup>31</sup>P-NMR, R785  
 membranes, structure-activity relations,  
 CCK, G176  
 metabolism  
 adrenergic-prostanoid control, new-  
 born (pig), H671  
 fluorocarbon-for-blood exchange and,  
 H719  
 thyrotropin-releasing hormone, R785  
 microvessels, fuel metabolism by, hypo-  
 glycemia and diabetes effects, E272  
 5'-monodeiodinase activity, fetus  
 (sheep), E337  
 sodium-potassium-ATPase inhibitor re-  
 lease, ANP regulation, F912  
 synaptosomes, calcium transport, PTH-  
 mediated changes, F837  
 systemic glucose allocated to, fetal  
 growth, E579  
 Brain stem, caudal, CCK effects, chronic  
 decerebration, R853  
 Bromosulfophthalein, transport, hepat-  
 cytes, G269  
 Bronchiolar epithelium, development, re-  
 sponse to oxygen and recovery, R755  
 Bronchoconstriction, capsaicin challenge,  
 substance P action and, R845

## SUBJECT INDEX TO VOLUME 254

Brown fat  
activity, hypophysectomy effects, obesity and, E162  
adaptive changes in acyl-CoA esters, during cold acclimation (hamster), E181  
cold-induced thermogenesis, following exercise training, R908  
fasting and refeeding, nonshivering thermogenesis, R11  
glucose utilization, obesity and, E342  
lipoprotein lipase in, cold-induced  $\beta$ -adrenergic recruitment, E155  
mitochondria, protein uncoupling (hamster), R1035  
norepinephrine turnover  
control of (hamster), R906  
food and light effects, R821  
proliferation,  $\beta$ -adrenergic stimulation, C175  
thermogenesis, aging and, R457

Brush-border membrane  
lactoferrin binding (monkey), G580  
renal  
chloride transport, F114  
phosphate transport, kinetic model, F329  
sodium-independent D-glucose transport, F711

Brush-border membrane vesicles  
intestinal, ontogenesis of taurine transport, G870  
renal, organic cation transporter in, F56

Bumetanide  
calcium absorption and, renal thick descending limbs, F62  
electrolyte transport and, distal tubule (salamander), F80  
sodium-potassium-chloride cotransport and, giant axon (squid), C582

2,3-Butanedione monoxine, calcium and, resting tension, heart, H678

**C**

Caffeine  
calcium requirement, colonic smooth muscle, G808  
length dependency of calcium sensitivity, skinned striated muscle, C491

Calcifediol, PTH action and, water and phosphate absorption, pars recta, F45

Calcitonin  
gastrointestinal transit and, neuronal pathways, G920  
metabolism, renal, F593  
receptors: see Receptors

Calcium  
absorption  
basal and hormone-activated, renal thick ascending limbs, F62  
vitamin D and, E402

ADH and, action in collecting tubule, F240

ANP effects and, papillary collecting duct, F477

balance, inhibition of, 1,25(OH)<sub>2</sub>D after, E260

chloride transport and, Henle's loop, F232

contractile properties and, ventriculocytes, H59

coupling, single ventricular cell, H937

cytosolic, PAF and PDGF effects, mesangial cells, F87

deficiency, embryo (quail), E639  
diffusion, perineurium of sciatic nerve (frog), C141  
flux, branchial transepithelial (trout), R491  
homeostasis  
aminoglycoside toxicity, renal cell, C251  
islet endoplasmic reticulum in insulin secretion and, E121  
hyperkalemia, renin release and renal hemodynamics, F704  
hypoxia-induced gain, rise in resting tension and, heart, H678  
intracellular  
eccrine sweating, C310  
isoproterenol and cAMP effects, MDCK cells, F374  
microelectrometric titration method of measurement, C200  
regulation during secretagogue stimulation, parietal cell, C130  
sodium-hydrogen exchange and, serotonin effects, enterocytes (chicken), G891

intracellular chloride concentration and, method of measurement, C200  
kinetics and contraction, angiotensin II effects, glomerular mesangial cells, F254

levels, extrarenal, parathyroid hormone effects, F385

lithocholic acid sulfates and, cholestasis, G644

metabolism  
model, R134  
parietal cell, C498

milk, absorption and transport, infant, G12

phosphate uptake and, kidney epithelium (opossum), F217

phosphorylation, smooth muscle, model, C99

plasma renin and plasma aldosterone dissociation, dietary glycine hydrochloride effects, E187

protein kinase C, amylase release and (guinea pig), G242

protein phosphorylation induced by, basolateral membrane, lacrimal gland, G543

proton influx, bone, during acidosis, neonate, F306

reoxygenation-induced overload, heart cells, embryo (chick), H1133

sensitivity  
length dependency, caffeine effects, muscle, C491  
pressure overload, skinned myocardium, H517

sequestration, kinetics, permeabilized pancreatic acini, C621

signals, hyperosmotic inhibition, neutrophils, C709

sodium and, human neutrophils, C150

sodium channels dependent on, bladder cells (toad), C512

sources, contraction of distal circular muscle or *taenia coli*, G808

spontaneous vasomotion, cerebral artery, genetic hypertension, H28

transport  
endoplasmic reticulum, maturation, G74

PTH-mediated changes, brain synaptosomes, F837

type II cells, lamellar body and, composition, C614

uptake  
extracellular acidosis effects, proximal tubules, C839  
hypocalcium effects, gill (trout), R891

Calcium-ATPase, high-affinity, branchial transepithelial (trout), R491

Calcium channel blockers  
adrenergic receptor interaction, ileum, G586

increased vascular response to, Dahl S kidney, F533

interactions, diaphragm muscle (hamster), C365

Calcium current  
pharmacological characterization, GH<sub>3</sub> cells, E328

protein kinase C and, GH<sub>3</sub> cells, C206

smooth muscle cells, airway, C793

Calcium-force relations, myoplasmic, stimulation of aortic smooth muscle, H840

Calcium ion antagonist, vascular smooth muscle cells (pig), C45

Calcium ions  
aldosterone response and, stimulation by angiotensin II (sheep), E566

potassium channel inhibition, atrial, C397

release, sarcoplasmic reticulum, skinned muscle fibers, C459

Calcium phosphate  
lithocholic acid sulfate interaction, cholestasis and, G644

metastable forms, model, R134

Calcium-phosphorus  
restriction  
diabetes and, effects on bone mineral metabolism, E496

maternal vitamin D status and, E505

Calf serum, fetal, type II pneumocyte alterations, C684

Calmodulin  
calcium homeostasis and, islet endoplasmic reticulum, E121

protein phosphorylation induced by, basolateral membrane, lacrimal gland, G543

cAMP: see Adenosine monophosphate, cyclic

Capacity  
lipogenic, exercise, detraining, starvation, and refeeding effects, R648

vasodilatory, amino acid infusion effects, pregnancy, kidney, F650

Capillaries  
brain, fuel metabolism by, hypoglycemia and diabetes effects, E272

filtration, intestinal, portal hypertension, G339

pressure: see Pressure

transport, albumin binding, microvascular endothelium, H425

Capsaicin  
bronchoconstriction and, R845

stimulation of intestinal afferents, cardiovascular function and, H354

Captopril  
blood flow and, vasa recta, F492

control of blood flow, vasa recta, F417

renal failure, converting enzyme inhibition in sodium depletion, F358

## SUBJECT INDEX TO VOLUME 254

**Captopril (continued)**  
 sodium depletion and, kidney, awake state, F754

**Carbachol**  
 calcium and stimulus-secretion coupling, parietal cell, C130  
 cholinergic stimulation with, calcium metabolism and, parietal cell, C498  
 inotropy and gap junction conductance, cardiac myocytes, H1206  
 manganese effects, visceral smooth muscle (guinea pig), G489  
 neuropeptide Y injections and, blood pressure, H879

**Trichinella** infection and, jejunal longitudinal muscle, G124

**Carbamylcholine**, amylase release and, pancreatic acini, G664

**Carbamylcholine chloride**, protein kinase C, amylase release and (guinea pig), G242

**Carbohydrates**  
 feeding patterns, corticosterone effects, R222  
 gluconeogenesis, during exercise and recovery, E518  
 low, sucrase-isomaltase degradation, jejunoleum, G907  
 metabolism, whole-body and muscle, insulin response, E231  
 thermogenesis induced by, normalization by fructose in insulin-resistant state, E201

**Carbon dioxide**  
 ammonium absorption and, distal colon, F657  
 partial pressure, rubidium absorption and, distal colon, G898  
 production, doubly labeled water method, infant, R622

**Carbonic anhydrase**, transport, proximal tubule, F554

**Carboxylic acid**, substrate utilization, proximal tubules, NADH fluorescence, F407

**Carcinogenesis**, chemical, renal metabolic/excretory coupling, F145

**Cardiac cycle**, aortic valve ring deformation, on-line measurement, H795

**Cardiac hormone**, aldosterone and renin inhibition, R1011

**Cardiac output**  
 ANF actions and, awake state (sheep), H811  
 atrial peptide infusion effects, R161  
 distribution, thermal dehydration, R109  
 hormonal response, hemorrhage, awake state, H947  
 improved techniques for monitoring, H181  
 pathophysiology of atrial peptides and, E1  
 somatostatin effects, portal hypertension, G322  
 ventilation with PEEP, end-systolic pressure-volume relations and, H664

**Cardioacceleration**, baroreflex-mediated, ANF attenuation, R590

**Cardiomyopathy**, norepinephrine turnover, brown fat (hamster), R960

**Cardiopulmonary response**, endotoxin administration (sheep), H833

**Cardiovascular regulation**  
 area postrema and, H963  
 septal neuron response, R331

**Cardiovascular response**, hemorrhage, awake state, H947

**Cardiovascular system**  
 AVP and angiotensin effects, pulmonic stenosis, H438  
 function, adrenal gland and, fetus (lamb), R706  
 intestinal afferents and, H354  
 norepinephrine effects, fetus (sheep), H734  
 sympathetic outflow, hypothalamic GABA effects, awake state, R680

**Carotid artery**, adrenergic nerves, endothelium inhibition of norepinephrine release, H871

**Carotid rete**, hemodynamic significance, changes in arterial blood pressure and (goat), R770

**Carotid sinus**, baroreflex-mediated cardioacceleration, ANF attenuation, R590

**$\lambda$ -Carrageenan**, wounds, arginine metabolism, E459

**$\beta$ -Carrier**, ontogenesis, intestinal transport, G870

**Castration**, enhanced fever after, brain arginine vasopressin and, R513

**Catalase**  
 importance, *E. coli* endotoxemia, H954  
 oxygen radical injury and, chief cells, G49

**Catecholaminergic activity**, locus coeruleus, after hemorrhage, R289, R296

**Catecholamines**  
 bradykinin actions and, H1042  
 contractile response to, during acidosis (chick), H20  
 electrophysiological evidence, solitary nucleus, H756  
 exercise and, hypoxia effects, R197  
 free and total, critical illness, E287  
 kinetics, sodium-restricted diet, model, E222  
 levels, extrarenal, parathyroid hormone effects, F385  
 nonhypotensive endotoxemia and, awake state, H509  
 opioid modulation of, hypoxemia and hypcapnia, awake state, H72

**PAF** and, glucose kinetics, E193

**plasma**  
 during bacteremia, awake state, R470  
 hemodynamic response to hemorrhage and naloxone, adrenal medulla role in, R559  
 removal, rest and exercise, R663  
 response to adrenal field stimulation, angiotensin II and, R95

**sodium depletion** and, kidney, awake state, F754

**stimulation**, interstitial fluid adenosine during, left ventricular, H207  
 vasopressin cells, supraoptic, R711

**Catheter**, perfused system, esophageal peristalsis, G8

**Cations**  
 divalent, contractile effects, cecum (guinea pig), G489  
 organic  
 interaction with organic anions, renal brush-border membrane vesicles, F56  
 transport, kidney epithelial cell line, F351

**CCK**: *see* Cholecystokinin

**CCK-8**: *see* Cholecystokinin octapeptide

**Cecum**  
 giant migrating contractions, G595  
 manganese contractile effects (guinea pig), G489

**Cell dynamics**, adipose tissue, hypothalamic obesity, R740

**Cellularity**, fat depot, aging, exercise, and thermogenesis, R908

**Cellular markers**, interstitial transudate, heart, H785

**Central nervous system**  
 acoustic stress-induced gastric motor inhibition, blockade by  $\kappa$ -opiate agonists, G802  
 gastrointestinal transit, inhibition by calcitonin, G920  
 lesions, sodium excretion and, R84  
 renal nerve activity and, prolonged hemorrhagic shock, R761  
 state of satiety and, insulin release, pancreatic, E384

**Cephalic phase**, response, pancreatic secretion, awake state, G424

**Cerebral artery**, vasomotion, genetic hypertension, H28

**Cerebral ventricles**  
 anteroventral third, preoptic lesions, sodium excretion and, R84  
 pathogenesis of fever, pattern differences, R633

**Cerebrospinal fluid**  
 cortical, histamine dilation of pial arteries, newborn (pig), H1023  
 ionic regulation, potassium depletion and, H250

**cGMP**: *see* Guanosine monophosphate, cyclic

**Chemoreceptors**: *see* Receptors

**Chemotactic factor**, neutrophils activated by, lithium movements, C526

**Chenodeoxycholate**, stimulation of efflux from hepatocytes, arginine vasopressin, G732

**Chief cells**  
 oxygen radical injury of, glutathione modulation of, G49  
 stomach, functionally distinct receptors for CCK (guinea pig), G151

**Chloride**  
 ANP effects and, papillary collecting duct, F477  
 conductance, corneal epithelium (bullfrog), C519  
 depletion, metabolic acidosis, AVP and renal concentrating defect in, F15  
 diluting segment, amphibian kidney, F615

**extracellular**, changes, intracellular chloride activity and, skin (frog), F95

**intracellular**, measurement of total concentration, C192

**luminal**, cell pH and, proximal tubule, F677

**secretion**  
 adrenergic stimulation of, epididymal epithelium, F121  
 intestinal, histamine effects, C53  
 parotid acinar basolateral membranes, C391

**transport**  
 ATP-dependent, intestine (seahare), R127  
 calcium effects, Henle's loop, F232

## SUBJECT INDEX TO VOLUME 254

transport pathways, secretagogue and, pancreatic zymogen granules, G93 tubular absorption, solute polarization during, cortical interstitium, F813

Chloride-bicarbonate exchange cell pH and, proximal tubules, F677 sodium-potassium-chloride cotransport with, parotid acinar basolateral membranes, C391

Chloride cell, calcium fluxes and, branchial transepithelial (trout), R491

Chloride channel apical membrane, colonic cell line, C505 blockade, effects on corneal epithelium (bullfrog), C519

Chloride-formate exchange, cell pH and, proximal tubules, F677

Chloride ions, secretion, secretory and absorptive airway epithelia, C535

2-Chloroadenosine, handling, interstitia of cremaster muscle, H369

Chloroquine, insulin processing and, kidney cells (opossum), C822

Chlorpheniramine autoregulatory escape and (piglet), G560 blood flow changes and, renal, F470 inhibition of blood flow, intestinal (swine), G156

Cholecystokinin activation of sodium-hydrogen exchange, acini (guinea pig), G25 amylase release and, pancreatic acini (guinea pig), G217 bile flow stimulated by, glucagon and, G864 binding and internalization, pancreatic acini (pig), G513 bombesin effects and, sphincter of Oddi, G361 chloride permeability and, pancreatic zymogen granules, G93 functionally distinct receptors for, dispersed chief cells, stomach (guinea pig), G151 myogenic receptor for, gallbladder, G294 protein kinase C and, pancreatic acini (guinea pig), G242 satiety action of, gastric and nongastric mechanisms, R628 secretion and circulation, pancreatic, G849 structure-activity relations, partial agonist activity, G176 sucrose intake and, chronic decerebration, R853

Cholecystokinin octapeptide continuous infusions, effects on food intake and weight, R17 contractile motility and, common bile duct (guinea pig), G819 optical absorbance changes, limited oxygen and, pancreas, C727 vomiting, comparison of gastrointestinal responses, G254

Cholecystokinin-pancreozmin, response to fat, pancreatic enzyme release and, G837

Choleresis, ursodeoxycholic acid, sodium-hydrogen exchange and, G232

Choleretic agents, bile flow and, glucagon, G864

Cholestasis, calcium, lithocholic acid sulfate interactions, G644

Cholesterol gonadotropin action and, testes, E708

Triton WR-1339-induced changes, G346

Cholesterol ester, uptake, fat cells, E667

Choline acetyltransferase, cholinergic neurotransmission, corpus cavernosum, H459

Cholinergic nerves, transmission, corpus cavernosum, H459, H468

Cholinergic neuron, contractile motility, CCK-8 effects, bile duct (guinea pig), G819

Chorioallantoic membrane, vitamin D deficiency, embryo (quail), E639

Choroid plexus, blood flow, vasoactive stimuli effects, H286

Chromaffin cells extra-adrenal epinephrine, after bilateral adrenalectomy, E52 medullary, membrane potentials, C675

Chromatography gas, thiomboxane receptor activation, endotoxemia (sheep), R310 high-performance liquid, epinephrine release, heart, R659 high pressure liquid, PTH metabolism, liver and kidney, E740

Chromogranin A, PTH compared with, opposite effects of 1,25(OH)D<sub>2</sub>D<sub>3</sub>, E279

Chronobiology, norepinephrine turnover, R821

Chymotrypsin, insulin binding, endocytosis and, adipocytes, E365

Cilia, cells, intercellular communication, C63

Cimetidine, calcium regulation with, parietal cell, C130

Cinefluoroscopy, biplane, right ventricular volume and pressure, H622

Circulation: *see also* Blood flow; Microcirculation cardiopulmonary, chronic sodium depletion, H905 central control, paraventricular nucleus contribution to, R531 cerebral, histamine dilation of pial arteries, newborn (pig), H1023 coronary, local hemodilution, H525 enterohepatic, calcium interaction, cholestasis and, G644 hepatic, portal pressure and, H452 intestinal, developing postnatal, autoregulation of (swine), G189 peripheral, neurohormones and cardio-pulmonary baroreflex, R320 pial, sciatic nerve stimulation effects, H133 pulmonary after hypoperfusion, awake state, H976 FPL 57231 and, fetal (sheep), H120 hypoxia effects, newborns with left atrial hypertension (lamb), H487 improved techniques for monitoring, H181 oxygen and, fetus (lamb), H532 reflex inhibition of, osmotically released vasopressin effects, R815

renal angiotensin II-stimulated prostaglandin production, F734 osmotic stability of red cells, urea and, C669 splanchnic, vasoconstrictor-induced hypertension, H709

sympathetic control, skeletal muscle, H929

Cirrhosis intestinal capillary filtration, chronic portal hypertension, G339 renal function, edema-forming states, R1017

Citrulline, activity, wounds, E459

Clearance atrial natriuretic factor, fetal and adult (sheep), R40 catecholamines, rest and exercise, R663 metabolic insulin secretion and, E349 PTH, liver and kidney, E740 osmolar, atrial peptide infusion effects, R161 plasma growth hormone, fetus and newborn (sheep), E318  $\alpha$ -hANP effects and, end-stage renal failure, F895

Clenbuterol alterations, skeletal muscle fibers, E726 loss of mRNAs and, atrophied skeletal muscle, C657

Clonidine blood flow and, finger, H889 calcium channel blockers and, ileum, G586 thermic effect of feeding and, R90

Cobra venom factor, pulmonary injury and, H258

Cocaine norepinephrine and intestine, H1187 jejunum, G135

Cold acclimation brown fat mitochondria (hamster), R1035 changes in acyl-CoA esters, brown fat (hamster), E181 exposure, oxygen consumption, norepinephrine effects, muscle, E482 thermogenesis induced by, aging and, R457

Collagen, synthesis, denervation and immobilization effects, skeletal muscle and tendon, R897

Colon apical membrane, chloride channels, C505 basolateral membrane, potassium conductance (turtle), C165 distal ammonium absorption, bicarbonate effects, F657 bicarbonate secretion, C383 circular muscle, sources of calcium, G808 electrical behavior of myenteric neurons (guinea pig), G522 epithelial cells from, G502 glucocorticoids and aldosterone effects on target tissue, F153 circular muscle, sources of calcium, G808

electrotonic current spread, G702 enterocyte membrane vesicles, sodium ion uptake, C484

giant migrating contractions, G595 IGF binding, G457 proximal, membrane potential gradient, sodium pump in, C475

## SUBJECT INDEX TO VOLUME 254

Colon (continued)  
 PYY cells, primary culture, G829  
 rubidium absorption, aldosterone and carbon dioxide effects, G898  
 Colonic crypt, mature and immature, populations, G610  
 Colonocytes, mature and immature, isolation of populations, G610  
 Compartmentation, dietary leucine and, R688  
 Compliance  
 gastric, physical model of intrathoracic stomach, G168  
 medication, insulin therapy, computer simulation study, E237  
 vascular, acetylcholine measurement, H115  
 venous, thyroid state effects, H81  
 Computer analysis  
 hormonal pulsatility, E786  
 simulation, conventional insulin therapy, E237  
 Converting-enzyme inhibitor  
 blood flow and, vasa recta, F492  
 renin heterogeneity, F432  
 sodium excretion and, experimental heart failure, R776  
 Copolymers, blockade, ion transport, C20  
 Copper, 25-hydroxyvitamin D metabolism and, Wilson's disease, E150  
 Corneal epithelium, chloride channel blocker effects (bullfrog), C519  
 Coronary artery  
 denudation, endothelial recovery after, H1081  
 endothelial cells, HETEs and prostacyclin synthesis, C8  
 reperfusion, postischemic dysfunction, H102  
 vascular smooth muscle cells, nifedipine binding to (pig), C45  
 Coronary bed  
 embolization, ventricle-load optimization, H1051  
 postsynaptic adrenoceptor-mediated vasoconstriction, H984  
 Coronary flow: *see* Flow  
 Coronary occlusion  
 nitroglycerin effects, awake state, H751  
 risk area size and location, H473  
 Coronary sinus  
 atrial rate and pressure, ANP release and, R607  
 epinephrine release, during left stellate ganglion stimulation, R659  
 Corpus cavernosum, cholinergic neurotransmission, H459, H468  
 Corticosteroid-binding globulin, steroid hormones, transport, uterus, E79  
 Corticosteroids  
 adrenal, sodium excretion and CNS lesions, R84  
 control of ACTH, R23  
 Corticosterone  
 blockade, infection, glucose kinetics and, E16  
 changes  
 breeding fast (penguin), R170  
 circulating osteocalcin and, R828  
 molting fast (penguin), R178  
 exocrine pancreatic development and, G315  
 feeding patterns and, R222  
 hypophysectomy and, obesity, E162

metallothionein and, basal and stress conditions, E71  
 plasma, cardiovascular and hormonal response, H947  
 ventromedial hypothalamic lesions, radio-frequency vs. electrolytic, R917  
 Corticotropin  
 aldosterone production and, glomerulosa cells, C744  
 inhibition of ACTH, R23  
 plasma, activity after hemorrhage, R289  
 Corticotropin-releasing factor, distribution and metabolism, model, E104  
 Cortisol  
 ACTH and, fetal secretion, arginine vasopressin effects (sheep), R410  
 exercise and, hypoxia effects, R197  
 feeding and (horse), R524  
 production (sheep), E799  
 regulation of gonadotropins, E595  
 Coupling  
 cell-to-cell, gap junctions in hepatocyte pairs, C226  
 electrical, intercellular communication, ciliated cells, C63  
 electrotonic, colonic smooth muscle, G702  
 excitation-contraction  
 calcium-dependent sodium influx, aorta, C75  
 calcium release from sarcoplasmic reticulum, C459  
 skinned muscle (frog), C107  
 metabolic/excretory, renal, F145  
 sodium-hydrogen ion, apparent saturation kinetics, freshwater hyperregulators (frog), R948  
 solute-solvent, proximal tubule, model, F297  
 stimulus-secretion  
 calcium and, parietal cell, C130  
 parietal cell, C498  
 ventricular/arterial, optimal, model, H609  
 C-peptides, secretion, physical inactivity and, E537  
 Creatine kinase  
 interstitial transudate, heart, H785  
 pressure overload, skinned myocardium, H517  
 scaled model, metabolic control analysis, R949  
 Creatine phosphate  
 fluid secretion and energy supply, high dose of acetylcholine, G781  
 pancreas, phosphorus nuclear magnetic resonance, G575  
 Cremaster muscle, interstitia of, adenosine handling in, H369  
 Crypt cells  
 gastrointestinal epithelium, IGF receptors, G457  
 intestinal, polyamines and their biosynthetic enzyme distribution, G194  
 Current  
 electrotonic, spread, colonic smooth muscle, G702  
 ionic, tetrodotoxin and lidocaine effects on action potentials, ventricular myocytes, H1157  
 short-circuit  
 atriopeptin II effects on opercular epithelium (killifish), R17  
 intestinal anaphylaxis, G307  
 sodium transport, amiloride inhibition of, epithelial cells (frog), C297  
 tracheal epithelium, fetal and adult, C691  
 transient outward, inhibition of potassium channels, atrial, C397  
 Cycloheximide  
 calcium effects and, phosphate transport, kidney epithelium (opossum), F217  
 fever, interferon-induced, R499  
 water flow and, urinary bladder (toad), F139  
 Cyclooxygenase  
 inhibition, sex differences in renal hemodynamics, F223  
 mediator, tubuloglomerular feedback, F642  
 pathway, alveolar macrophages, C809  
 Cystic fibrosis, ion transport, cAMP-binding protein and, rectum, C719  
 Cytochalasin B  
 endotoxicemia, neutrophil activation and, H1017  
 insulin action on glucose transport, skeletal muscle, E633  
 Cytochrome  
 aging, exercise and diet effects, heart, H599  
 mitochondrial, optical absorbance changes and, pancreas, C727  
 Cytochrome c  
 metabolism, renal, E419  
 mRNAs, atrophied skeletal muscle, C651  
 triiodothyronine effects, myocardial dysfunction, chronic diabetes, H265  
 Cytokines, recombinant-derived, regulation of feeding and hepatic protein synthesis, G450  
 Cytoskeleton  
 morphological changes, sodium-potassium pumping activity, C847  
 tight junction interactions, G416  
 Cytosol, composition, relaxed skeletal muscle (frog), C591

## D

Decarboxylase, distribution, intestinal adaptation and, G194  
 Decerebration, chronic, sucrose intake, CCK effects, R853  
 Defecation, rectal distension, neuromuscular control, G100  
 Deferoxamine  
 hydroxyl radical and, Heymann nephritis, F337  
 importance, *E. coli* endotoxemia, H954  
 Defibrillation, cardiac transmural electrodes, fabrication technique, H804  
 Deformylase, metabolic/excretory coupling, renal, F145  
 Dehydration  
 downregulation of vasopressin receptors, kidney tubules, C404  
 leg vasodilation, vasoconstrictor system effects (baboon), H11  
 neurohumoral interactions, awake state, R338  
 thermal, cardiac output distribution in, R109  
 Dehydroascorbic acid, oxidized, intestinal transport and metabolism, G824  
 2-Deoxy-D-fructose, food intake and, R150

## SUBJECT INDEX TO VOLUME 254

Deoxyglucose  
<sup>14</sup>C-labeled, tracer for brain glucose use, E310  
 measurement of glucose phosphorylation, brain, E443  
 2-Deoxyglucose, utilization, obesity and, white adipose tissue, E342  
 Deoxyribonucleic acid  
 complementary probes, nephrosis and, liver, C634  
 protein turnover and, gravid and non-gravid uterus, E549  
 stretch-induced growth, uterus, E543  
 synthesis, amiloride and, G408  
 Depolarization, maximum rate, tetrodotoxin and lidocaine effects on action potentials, ventricular myocytes, H1157  
 Depressor neurons, GABA receptors and, rostral medulla, H686  
 Desaturation, cellular calcium, proximal tubules, C839  
 Development: *see also* Growth; Maturation  
 cerebral blood flow, fetus and newborn (lamb), H52  
 exocrine pancreatic, thyroxine effects, G315  
 jejunal, ontogenesis of taurine transport, G870  
 medullary inspiratory activity during (opossum), R578  
 milk calcium, infant, G12  
 muscle, myosin transitions in, C605  
 regulation, intrinsic factor mRNA, G913  
 renal function, neurohormonal regulation (sheep), F771  
 Dexamethasone  
 aldosterone and, target tissue, colon, F153  
 sodium uptake and, colonic enterocyte membrane vesicles, C484  
 Dextran  
 infusion, natriuretic response to volume expansion (monkey), R727  
 transglomerular transport, cardiac atria and, F562  
 Diabetes  
 2,5-anhydro-D-mannitol effects, food intake, R150  
 amylase secretion during feeding, parotid gland and pancreas, G878  
 calcium-binding protein, 1,25(OH)<sub>2</sub>D<sub>3</sub> and, fetus, E505  
 chronic, myocardial dysfunction in, tri-iodothyronine effects, H265  
 hyperfiltration  
 sodium restriction effects, F668  
 vasoregulatory hormones and, F202  
 insulin-deficiency, autoprophosphorylation of EGF receptor, E429  
 intestinal ion transport, enteric nerves, G444  
 low calcium-phosphorus diet and, effects on bone mineral metabolism, E496  
 plasma glucose in, lowering with antipolytic agents, E23  
 starvation and, muscle branched-chain  $\alpha$ -keto acid dehydrogenase and, E292  
 vasopressin activity, antagonists of, F165  
 Diabetes insipidus, nephrogenic, in metabolic acidosis, F15  
 Diabetes mellitus  
 hypoglycemia and, fuel metabolism by brain microvessels, E272

insulin-dependent, computer simulation study, E237  
 non-insulin-dependent, fructose-induced thermogenesis, E201  
 streptozotocin, organ-specific adaptations, E749  
 Diabetic ketoacidosis, hepatic ketone body production, insulin effects, E694  
 Diacytosis, asialoorosomucoid, cytosolic pH and, C829  
 Diadenosine tetraphosphate, vasomotor activity, isolated arteries, H828  
 Diadenosine triphosphate, vasomotor activity, isolated arteries, H828  
 Diaphragm  
 developing muscle fibers, oxidative potential in, C661  
 muscle, force-frequency response (hamster), C365  
 Diastolic function, thyroid state effects, H81  
 Diazoxide  
 electrolyte transport and, distal tubule (salamander), F80  
 urinary responses to, arterial pressure effects, R69  
 Dicarboxylates, contraluminal transport system, organic anion secretion, proximal tubules, F453  
 Diencephalic neurons, sympathetic nerve-related activity, R257  
 Diencephalic regions, sympathetic nerve discharge and, R249  
 Diet: *see* Feeding  
 Diglycerides  
 inhibition of transport, proximal convoluted tubule, F9  
 parathyroid hormone secretion and, E63  
 Dihydropyridine  
 calcium currents, airway smooth muscle, C793  
 receptors: *see* Receptors  
 1,25-Dihydroxyvitamin D<sub>2</sub>: *see* Vitamin D<sub>2</sub>  
 Diltiazem, interaction with verapamil and theophylline, diaphragm muscle (hamster), C365  
 2,3-Dimercapto-1-propane sulfonate, activity and excretion, kidney, F871  
 1,1-Dimethyl-4-phenylpiperazinium, somatostatin secretion and, antrum and fundus of stomach, G20  
 Dimethylthiourea, hydroxyl radical and, Heymann nephritis, F337  
 Dioctanoylglycerol, phorbol myristate acetate and, inhibition of transport, proximal convoluted tubule, F9  
 Dipeptides, metabolism, liver, gut, kidney, and muscle, E588  
 Diphenylamine-2-carboxylate, chloride channel blocker, corneal epithelium (bullfrog), C519  
 1,6-Diphenyl-1,3,5-hexatriene, plasma membrane fluidity and, hyperoxia effects, C781  
 Dipyridamole  
 adenosine release and, aortic endothelial cells (pig), H223  
 handling, interstitia of cremaster muscle, H369  
 interstitial transudate concentration of adenosine and, heart, H1125  
 Diuresis  
 ANF, during head-out immersion, R235  
 atrial peptide infusion effects, R161  
 head-out water immersion and, renal and endocrine responses, R977  
 homeostatic potassium excretion, feeding and fasting (sheep), R357  
 immunoreactive atrial natriuretic factor, model (sheep), R567  
 increased plasma cGMP, after  $\alpha$ -human atrial natriuretic peptide, G814  
 lysophospholipids, F824  
 pressure, response to acute arterial hypertension, F601  
 renin forms and, F432  
 vasopressin antagonists, F165  
 Diuretics  
 diluting segment, amphibian kidney, F615  
 inhibition, Friend murine erythroleukemic cell differentiation, C122  
 juxtaglomerular interstitial hypertonicity, F445  
 Diurnal cycle, corticosterone, feeding patterns and, R222  
 DMPS: *see* 2,3-Dimercapto-1-propane sulfonate  
 Dobutamine, infarct size and, myocardial, H855  
 Domperidone, GI responses, CCK-8 and vomiting comparison, G254  
 Dopamine  
 free response, critical illness, E287  
 glomerular actions of, F196  
 receptors: *see* Receptors  
 release, striatal, sinoaortic denervation and, R396  
 sodium-potassium-ATPase activity and, kidney tubules, F795  
 Dorsal root ganglion, embryo, protein kinase C and calcium currents, C206  
 Dose-response relations, autoregulation, vascular resistance and, hypertension, H709  
 Downregulation, dehydration, vasopressin receptors, renal tubules, C404  
 Drinking  
 $\beta$ -adrenergic responsiveness, fasting and thyroid treatment, R33  
 osmoregulation of thirst, vasopressin and, normal menstrual cycle, R641  
 suppression of vasopressin release, hypertension and, during and after gestation, F588  
 urinary responses to angiotensin II and, arterial pressure effects, R69  
 water, hormonal and renal responses to, training effects, R417  
 Duodenum, alkali secretion, neural regulation of, G162  
 Dynorphin, opiate receptor agonist sites of action, ileocecal sphincter, G224

## E

Echocardiography, left ventricular cavity shape change, site of regional ischemia and, H547  
 Edema  
 formation, renal function and, R1017  
 recovery, hypoproteinemia and, F887  
 Efferent nerve  
 neural activity, penis, R989  
 sympathetic, dynamic changes in venous outflow, R212  
 EGF: *see* Epidermal growth factor

**Eicosanoid**  
fatty acid effects, tight junction formation, MDCK cells, C432  
metabolism, cerebromicrovascular endothelium, C37  
renal production, pregnancy and, E687

**Elasmobranch**, hepatocytes of, L-alanine uptake (skate), R801

**Elastance**  
maximum, ventricle-load optimization, H1051  
ventricular, end-systolic pressure-volume relations, H1113

**Electrodes**  
ion-specific, cell volume measurement, C192  
transmural cardiac, fabrication technique, H804

**Electrolytes**  
secretion  
glomerular renal proximal tubules (fish), R154  
lacrimal gland, peptides and, G300  
transport, acid-base effects, ileal, G329  
water and, balance, vasopressin, menstrual cycle, R641  
weak, ammonium absorption, colonic, F657

**Electromagnetic induction**, aortic valve ring, during cardiac cycle, H795

**Electroneutrality**, cytosol composition, relaxed skeletal muscle (frog), C591

**Electron probe**, sodium-potassium pumping activity, C847

**Electron spin resonance**, albumin, anion uptake and, liver, G463

**Electrophysiology**  
 $\alpha_1$  and  $\alpha_2$  receptors, solitary nucleus, H756  
cardiac transmural electrodes, fabrication technique, H804  
intrinsic nerves, esophageal muscle (opossum), G107  
juxtaglomerular interstitial hypertonicity, F445  
neural activity, penile nerve, R989  
renal capillary membranes, F364  
sodium transport, amiloride inhibition of, epithelial cells (frog), C297

**Eleodisin**, gastric secretion and, basal and stimulated (cod), G183

**Embolization**, quantification by microspheres, myocardium, H636

**Embryo**  
cardiac  $\beta$ -receptors, acidosis effects (chick), H20  
heart cells, reoxygenation-induced calcium overload (chick), H1133  
intestine, glucose and glycogen metabolism, hormone effects (chick), G65  
structural vascular adaptation, intermittent hypoxia effects (chick), H1194  
vitamin D deficiency (quail), E639

**Endocrine cells**, primary culture, colon, G829

**Endocrine glands**, vascular conductance, VIP effects, E435

**Endocrine system**  
adaptation, hypotensive hemorrhage, atrial natriuretic peptide role in, R56  
norepinephrine effects, fetus (sheep), H734

**Endocytosis**  
ADH-induced vacuoles, cortical collecting tubule, F719

asialoorosomucoid, cytosolic pH and, C829  
cell surface insulin binding and, adipocytes, E365  
insulin and cytochrome c metabolism and, renal, E419  
insulin binding and degradation, kidney cell line (opossum), E601  
insulin processing, kidney cells (opossum), C822

**Endoplasmic reticulum**, calcium transport, during maturation, G74

**Endothelial cells**  
fibrinolytic activity, comparison (human, bovine), R885  
venular, heart, H1211

**Endothelium**, regeneration, denudation of coronary artery, H1081

**Endothelin-derived relaxing factor**  
cGMP and, hypertension, H163  
norepinephrine release and, adrenergic nerves of carotid artery, H871  
vascular effects, aortic sepsis, R436

**Endotoxemia**  
cardiovascular monitoring, improved techniques, H181  
chronic, left ventricular function in (swine), H324

*E. coli*, importance of oxygen free radicals, H954

immunoreactive atrial natriuretic factor, model (sheep), R567

insulin-stimulated sugar transport, skeletal muscle, R673

neutrophil activation and, H1017

nonhypotensive, prostaglandins and, awake state, H509

receptor activation, thromboxane (sheep), R310

**Endotoxic shock**: *see* Shock

**Endotoxin**  
continuous administration, cardiopulmonary responses (sheep), H833  
experimental fever induced by, pattern differences, R633  
pyrogen fever, genesis of, prostaglandin E<sub>2</sub>, R463

**End-systolic pressure-thickness relations**, afterload resistance effects, H658

**Energetics**  
cardiac, low coronary perfusion effects, H292  
myocardial, negative work effects, left ventricle, H34

**Energy**  
balance, hypophysectomy effects, obesity and, E162  
charge, scaled creatine kinase model, R949  
expenditure  
clonidine effects on feeding, R90  
doubly labeled water method, infant, R622  
metabolism, gossypol effects, adult cells, C564  
provision, exercise and (fish), R302  
supply, mandibular gland, acetylcholine and, G781

**Enkephalins**, hemodynamic response to, adrenal medulla role in, R559

**Enteric nerves**, intestinal ion transport by, diabetes and, G444

**Enteric nervous system**, neurons, electrical behavior, distal colon (guinea pig), G522

**Enterocytes**, putrescine uptake characteristics, G81

**Enzymes**: *see also* specific enzyme activity  
adaptations to exercise, fasting, R877  
exercise and feeding effects, heart, aging, H599  
apical membrane, kidney epithelial cell line, C251  
biosynthetic, intestinal adaptation, G194  
recovery, muscle cells, C1  
24-epi-1,25-dihydroxyvitamin D<sub>2</sub>: *see* Vitamin D<sub>2</sub>

**Epidermal growth factor**  
hexose monophosphate shunt and, kidney cells, C267

**receptor**: *see* Receptors  
specific receptors for, intestinal microvillus membranes, G429

**Epididymal epithelium**, anion secretion, adrenergic stimulation of, F121

**Epinephrine**  
adrenergic modulation, glucagon and insulin secretion, pancreas (sheep), R518  
adrenomedullation, endurance and, R572  
anion secretion and, epididymal epithelium, F121  
blockade, infection, glucose kinetics and, E16

**cardiovascular and endocrine systems** and, fetus (sheep), H734

exercise and, hypoxia effects, R197

extra-adrenal secretion, after bilateral adrenalectomy, E52

free response, critical illness, E287

glucose uptake, during exercise, skeletal muscle, E555

insulin effects and, postprandial thermogenesis, E625

insulin release and, pancreas, fetal and neonatal, E167

ion transport and, tracheal epithelium, fetal and adult, C691

oxygen consumption and, cold-exposed skeletal muscle, E482

peptide YY inhibition and, insulin release, E513

**plasma**  
during bacteremia, awake state, R470  
removal, rest and exercise, R663

release, heart, during left stellate ganglion stimulation, R659

renin secretion induced by, cardiac adrenoceptor effects, E265

response to adrenal field stimulation, angiotensin II facilitation of, R95

stimulation with, individual vessels in tenuissimus muscle, H631

**Epithelial cells**  
histamine secretion effects, chloride secretion, intestinal, C53

small intestinal, differentiation by extracellular matrix, G355

sodium transport, amiloride inhibition (frog), C297

swelling, potassium-induced, gallbladder, C643

**Epithelium**  
acid-secreting, bicarbonate transport in (locust), R348

extracellular chloride, changes, intracellular chloride activity and, skin (frog), F95

## SUBJECT INDEX TO VOLUME 254

Epitrochlearis, basal and insulin-stimulated sugar transport, endotoxemia and bacteremia, R673

Erythrocytes  
flux, converting-enzyme inhibitor effects, kidney, F492  
neuraminidase-treated, sequestration of, H1167  
osmotic stability, urea transport and, renal circulation, C669  
sodium content, NMR measurement of volume regulatory uptake, C466  
sodium-potassium-chloride transport, asymmetry of, C243  
transport, Fahraeus and Fahraeus-Lindqvist effects, H238  
velocity  
angiotensin II and prostaglandin control of, vasa recta, F417  
hemodilution effects, H411  
oxygen transport and, striated muscle (hamster), H331  
volume, measurement with extracellular electrodes, C192

Esophagus  
intrinsic nerves, electrophysiological analysis of response (opossum), G107  
motility: *see* Motility

Estradiol  
GnRH-LH axis, food restriction effects, female, R616  
replacement, ovariectomy and, LH mRNA subunits in, E99

Estrogen  
lipid dynamics and, ileal basolateral membrane, G687  
microtubule and plasmalemmal reorganization, E775

Ethanol  
acute effects, glucose kinetics, E175  
blood flow increase and, portal, G495  
damage induced by, gastric mucosa, leukotriene mediation of, G117  
intestinal plasma protein loss induced by, 5-lipoxygenase products and, G483  
phospholipid and proton pump function, parietal cell membrane, G57

Ethynodiol, lipid dynamics and, ileal basolateral membrane, G687

5'-N-Ethylcarboxamidoadenosine, handling, interstitia of cremaster muscle, H360

Euglycemic clamp  
insulin  
after acute exercise, E248  
aging and, awake state, E92

Euglycemic-hyperinsulinemic clamp, adenosine effects, myocardium, H970

Exercise  
acute, insulin action after, E248  
asynchrony effects, myocardial relaxation, awake state, H817  
changes in myoelectric activity, jejunum, G741  
detraining, starvation-refeeding and, R648  
energy provision in (fish), R302  
feeding and, cardiac energetics during aging, H599  
glucose uptake during, skeletal muscle, E555  
gracilis muscle, oxygen tension of individual fibers, H1179

heart rate recovery after, age and training status effects, H340  
hormonal response to, hypoxia and physical training effects, R197  
hypoglycemia, glucagon and insulin effects against, E713  
isoproterenol and, maximum heart rate responses, R834  
lack of, trained subjects, insulin secretion and, E537  
metabolic and structural, chronic intermittent fasting, R877  
plasma free fatty acid levels, hepatic vagal my effects, R602  
proteinuria after, glomerular/tubular, F277  
recovery and, gluconeogenesis from alanine during, E518  
rest and, regional plasma catecholamine removal, R663  
static, hypertension and, H592  
tetanic stimulation of muscle, ion fluxes during, R117  
training  
age and, heart rate recovery and, H340  
cold-induced thermogenesis effects, R908  
high-intensity, vascular transport capacity and, hindquarters, H274  
hormonal and renal responses to water drinking, R417

Exocrine gland  
basolateral membrane, chloride-bicarbonate exchange in, C391  
permeabilized pancreatic acini, kinetics of calcium sequestration, C621  
plasma membrane, protein kinase, G543  
vascular conductance, VIP effects, E435

Exocytosis  
hyperosmotic inhibition, neutrophils, C709  
myosin phosphorylation, pancreatic acini, G130

Extensor digitorum longus, developing muscle fibers, oxidative potential in, C661

Extracellular matrix, differentiation, small intestinal epithelial cells, G355

Extrinsic nerves, pancreatic secretion and, G436

**F**

Facial vein, cooling, brain (reindeer), R730

Fasting  
 $\beta$ -adrenergic responsiveness, thyroid treatment, R33  
breeding changes (penguin), R170  
chronic intermittent, adaptations to exercise and, R877  
diabetes and, muscle branched-chain  $\alpha$ -keto acid dehydrogenase and, E292  
feeding and, homeostatic potassium excretion (sheep), R357  
gluconeogenesis, liver and kidney (bird), R903  
glucose production and proteolysis, insulin effects, E700  
glycogen synthase regulation, muscle and adipose tissue, E720  
long-term, protein and lipid utilization (penguin), R61  
metabolic responses and, after hepatic vagotomy, R602

myocardial substrates and, sex differences, C560  
refeeding and  
exercise detraining effects, R648  
nonshivering thermogenesis, brown fat, R11  
substrate levels, turnover rate relations, adults and newborns, E137

Fat  
CCK-pancreozymin response to, pancreatic enzyme release and, G837  
dietary, gonadotropin action and, testes, E708

Fat cells: *see* Adipocytes

Fatty acids  
free  
ethanol and acetate effects, E175  
hepatic, adrenomedullation effects, R572  
levels, selective hepatic vagotomy effects, R602  
lowering with antipolytic agents, diabetes, E23  
metabolism, meals and (pig), E372  
metabolism, tracer studies, E562  
response to stress, aging effects, E617  
inhibition of ketone body production by insulin, liver, E694  
membrane lipid composition, thermal acclimation and (crayfish), R870  
substrate utilization, proximal tubules, NADH fluorescence, F407  
tight junction formation and, C432

Feces, continence, cerebral evoked potentials and, G477

Feedback  
electronic device, arterial pressure control, H187  
glucocorticoid, inhibition of ACTH, R23  
tubuloglomerular juxtapaglomerular interstitial hypertension, F445  
prostaglandins as mediators, F642  
response to acute arterial hypertension, F601

Feeding  
chronic intermittent fasting, adaptations to exercise and, R877  
diet and exercise, aging and, cardiac performance, H599  
dietary fish oil, cardiac function and, H494  
dietary leucine, compartmentation, R688  
dietary obesity, refeeding hypertension and, R47  
fasting and, homeostatic potassium excretion (sheep), R357  
food intake  
2,5-anhydro-D-mannitol effects, R150  
CCK-8 effects, R17  
heat production and, insulin role, E625  
hepatic control, metabolism and, R969  
hepatic protein synthesis and, regulation by recombinant-derived cytokines, G450  
high-fat diet, norepinephrine turnover, brown fat (hamster), R960  
high-protein, low-carbohydrate diet, sucrase-isomaltase degradation, jejunum, G907  
high-salt diet, sodium-potassium-ATP-ase activity and, kidney tubules, F795  
jejunal capillary exchange capacity, thromboxane synthesis inhibitors and, G695

Feeding (continued)  
 light and, norepinephrine turnover, R821  
 low calcium-phosphorus diet, bone mineral metabolism, E496  
 macronutrient self-selection patterns, corticosterone administration effects, R222  
 meals, glucagon and leucine metabolism with (pig), E372  
 noncaloric meal, digestive motor patterns, ileum, G552  
 plasma hormone effects, ventromedial hypothalamic lesions, R917  
 refeeding, glycogen synthase regulation, muscle and adipose tissue, E720  
 renin-angiotensin-aldosterone system (horse), R524  
 restriction  
   adenylate cyclase during aging and, liver, E54  
   GnRH-LH-estradiol axis and, female, R616  
 satiety action of CCK, gastric and non-gastric mechanisms, R628  
 sodium-restricted diet, norepinephrine kinetics, model, E222  
 sucrose intake, CCK effects, chronic decerebration, R853  
 test meals, drug effects on gastric emptying, G637  
 thermic effects, clonidine and, R90  
 Femoral vascular bed, postsynaptic adrenoceptor-mediated vasoconstriction, H984  
 Fetus: *see also* Placenta; Pregnancy  
 ACTH and cortisol secretion, arginine vasopressin effects (sheep), R410  
 adrenal gland, cardiovascular function and (lamb), R706  
 $\alpha$ -adrenoceptor responses, renal vascular bed (sheep), R277  
 ANP, ontogeny of renal response, F634  
 atrial natriuretic factor metabolism (sheep), R40  
 biphasic response to glucose, pancreas, E167  
 calcium-binding protein, 1,25(OH)<sub>2</sub>D<sub>3</sub> and, E505  
 cardiovascular and endocrine systems, norepinephrine effects (sheep), H734  
 epidermal growth factor, intestinal microvillus membranes, G429  
 growth, systemic glucose allocated to cerebral use, E579  
 growth hormone, disappearance from plasma (sheep), E318  
 hypoxia, exogenous substrate uptake during (lamb), E572  
 ion transport, tracheal epithelium, C691  
 nutrition, amino acid transport systems, placenta, C773  
 oxygen, pulmonary vascular response to (lamb), H532  
 preterm, developmental changes in cerebral blood flow (lamb), H52  
 pulmonary circulation, FPL 57231 and (sheep), H120  
 renal function, neurohormonal regulation (sheep), F771  
 thoracic duct, lymph flow response to intravascular saline (sheep), R1007  
 type II pneumocytes, partial pneumonectomy, C684  
 Fever  
   after central interleukin 1 and  $\alpha$ -melano-

cyte-stimulating hormone, aging and, R401  
 enhanced, following castration, R513  
 experimental, pattern differences, R633  
 interferon and its inducer, R499  
 pyrogen, genesis of, prostaglandin E<sub>2</sub>, R463  
 Fibronectin activity, endothelial cells, comparison (human, bovine), R885  
 Fibroblasts, 3-O-Methyl-D-glucose influx and efflux, C628  
 Filtration  
   glomerular  
   amino acid infusion effects, pregnancy, F650  
   ANF effects, nephrotic syndrome, F211  
   atrial peptide infusion effects, R161  
   autoregulation, model (chicken), R925  
   dopamine and, F196  
   during hyperkalemia, F704  
   glucagon effects, F762  
   neurohormonal regulation during development (sheep), F771  
   prostaglandin interactions, F184  
   response to ANP, F634  
   sex differences in renal hemodynamics, F223  
 Fish oil, dietary, cardiac function and, H494  
 Flow  
   collateral  
   dobutamine effects, H855  
   risk area size and location, H473  
   coronary  
   regulation, adenosine and, H207  
   regulation, adenosine role in, H1125  
   rate, insulin absorption and, proximal tubules, F802  
   urine, renal nerves and, uninephrectomy, F32  
   vascular, capacity, high-intensity exercise training and, hindquarters, H274  
   water, protein synthesis inhibitor effects, urinary bladder (toad), F139  
 Flowmetry  
   laser-Doppler  
   blood flow in gastric acid secretion, G281  
   liver blood flow, G471  
 Fluid  
   balance, angiotensin II and, R69  
   cerebrospinal: *see* Cerebrospinal fluid  
   interstitial, left ventricular, adenosine in, H207  
   secretion  
   glomerular renal proximal tubules (fish), R154  
   mandibular gland, acetylcholine and, G781  
   transcapillary exchange, microvascular control (bat), H772  
   volume, muscle, tetanic stimulation effects, R117  
 Fluorescence  
   chloride transport mechanisms, renal brush border, F114  
   NADH, substrate utilization, proximal tubules, F407  
 Fluorescent dye, epithelial cells, distal colon, G502  
 Fluoride  
   food restriction and, adenylate cyclase, liver, E54  
 sodium-potassium-chloride cotransport and, giant axon (squid), C582  
 Fluorocarbons  
   exchange, cerebral blood flow after, H719  
   perfusion, heart, albumin effects, H1105  
 Fluorometry, graded hypoxia and hyperoxia, brain (gerbil), C699  
 Folate, uptake, placenta (guinea pig), C735  
 Folinic acid, uptake, placenta (guinea pig), C735  
 Follicle-stimulating hormone  
   frequent sampling, neuroendocrine-gonadal axis, men, E658  
   GnRH effects, mating behavior in males, E84  
   regulation by glucocorticoids, E595  
 FMLP: *see* N-Formyl-L-methionyl-L-leucyl-L-phenylalanine  
 N-Formyl-L-methionyl-L-leucyl-L-phenylalanine, coronary vasoconstriction, myocardial ischemia and, H481  
 Forskolin  
   chloride channel, secretory cells, C505  
   food restriction and, adenylate cyclase, liver, E54  
   gastric acid secretion stimulated by, somatostatin effects (toad), G531  
 Fourier analysis, left ventricular cavity shape change, site of regional ischemia and, H547  
 FPL 57231, pulmonary circulation and, fetus (sheep), H120  
 Frank-Starling mechanism, wall shear rate, arterioles, H1059  
 Freezing, calcium signals, exocytosis and, neutrophils, C709  
 Friend murine erythroleukemic cells, differentiation, amiloride inhibition of, C122  
 Fructose  
   feeding and, hepatic control, R969  
   normalization of carbohydrate-induced thermogenesis, insulin-resistant state, E201  
   osmoregulation, renal medullary cells, C788  
 Fructose 2,6-bisphosphate, hepatic, liver and, adrenomedullation effects, R572  
 FSH: *see* Follicle-stimulating hormone  
 Fundus, somatostatin secretion, G20  
 Fura-2  
   calcium metabolism and, parietal cell, C498  
   calcium regulation, stimulus-secretion coupling and, parietal cell, C130  
 Furosemide  
   asymmetry of sodium-potassium-chloride cotransport, erythrocytes, C243  
   calcium absorption and, renal thick ascending limbs, F62  
   electrode sandwich technique, studying potassium transport in renal cells (frog), F608  
   electrolyte transport and, distal tubule (salamander), F80  
 NMN transport and, renal brush-border membrane vesicles, F56

## G

GABA: *see*  $\gamma$ -Aminobutyric acid  
 Galactosylhydroxylsyl glycosyltransferase, denervation and immobilization effects, skeletal muscle and tendon, R897

Gallbladder  
CCK, myogenic receptor for, G294  
epithelium, potassium-induced cell swelling, C643

Ganglia, autonomic, electrical behavior, distal colon (guinea pig), G522

Gastric acid  
hydrogen-potassium-ATPase, G856  
secretion  
basal and stimulated, somatostatin effects (cod), G183  
blood flow role in, G281  
fundic mucosal mast cells, G40  
GABA effects, G723  
parietal cell function, G33  
phosphoinositol production and, parietal cell, G622  
secretagogue and forskolin-stimulated, somatostatin effects (toad), G531  
TRH analogue injection effects, G639

Gastric antrum, somatostatin secretion, G20

Gastric emptying  
calcitonin effects, neuronal pathways, G920  
drug effects, animal models, G637  
satiety action, CCK, R628

Gastric gland, hydrogen-potassium-ATP-ase secretion, G856

Gastric mucosa  
blood flow: *see* Blood flow  
ethanol-induced damage, leukotriene mediation of, G117  
gastrin levels, aging effects, G538  
injury, gradual reintroduction of oxygen and, G366  
ontogeny response to luminal hydrogen, prostaglandin effects, G378  
prostaglandin synthesis, after massive small bowel resection, G373  
response to hydrogen, neonatal and maternal prostaglandins in, G142

Gastric mucosal barrier, toxic oxygen metabolite injury, glutathione modulation of, G49

Gastrin  
activation of sodium-hydrogen exchange, acini (guinea pig), G25  
levels, aging and, G538  
secretion, dispersed chief cells from stomach (guinea pig), G151  
stimulation, gastric acid secretion, parietal cell, G33  
synthesis, posttranslational processing mechanisms and, G87

Gastrin-releasing peptides, bombesin, sphincter of Oddi, G361

Gastrointestinal epithelium, IGF receptors, G456

Gastrointestinal tract, milk calcium absorption, infant, G12

Gene expression  
intrinsic factor mRNA, developmental regulation, G913  
renin and angiotensin during ACE inhibition, F900  
maturing kidney, F582

Gene transcription, albumin, nephrosis and, liver, E676

Gentamicin, nephrotoxicity, acute renal hypoperfusion, F574

Gestation, during and after, drinking effects on vasopressin release, F588

GH<sub>3</sub> cells  
calcium currents, protein kinase C and, C206

calcium currents in, E328

Gill, calcium fluxes, branchial transepithelial (trout), R491

GIP: *see* Polypeptides, gastric inhibitory

Glomerulonephritis, chronic, renal blood flow autoregulation, F284

Glomerulosa cells, aldosterone production, sodium-hydrogen and sodium-calcium exchange role in, C744

Glucagon  
blockade, infection, glucose kinetics and, E16  
CCK-stimulated bile flow and, G864  
changes, breeding fast (penguin), R170  
food restriction effects, liver, during aging, E54  
hypoglycemia and, exercise, E713  
insulin release and, E454  
ketone body production and, liver, E694  
PAF and, glucose kinetics, E193  
pancreatic, adrenergic modulation of (sheep), R518

plasma, somatostatin effects, portal hypertension, G322

urinary acidification and, F762

Glucocorticoids  
aldosterone vs., target tissue, F153  
feedback inhibition of ACTH, R23  
intrinsic factor mRNA, developmental regulation, G913  
regulation of gonadotropins, E595  
renal ammoniagenesis and, F134  
renin substrate release and, liver slices, E389

serum and liver metallothionein, in basal and stress conditions, E71

starvation and, muscle branched-chain  $\alpha$ -keto acid dehydrogenase and, E292

Gluconeogenesis  
adrenergic blockade, bacterial infection, E16  
endurance and, adrenomedullation effects, R572  
from alanine, during exercise and recovery, E518  
liver and kidney (bird), R903  
platelet-activating factor effects, E193

Glucose  
amylase protection, acid pH, G775  
biphasic response to, pancreas, fetal and neonatal, E167  
<sup>14</sup>C-labeled, tracer for brain glucose use, E310  
disposal  
physical inactivity and, E537  
whole-body and muscle, insulin response, E231

exercise and, hypoxia effects, R197  
feeding and, hepatic control, R969  
fuel metabolism and, brain microvessels, E272

<sup>3</sup>H-labeled, insulin effects on production, fasting and, E700

kinetics  
adrenergic blockade in infection and, E16  
ethanol and acetate effects, E175  
platelet-activating factor, E193

load, gastric, metabolic fate in unrestrained rats, E407

mechanisms of protection, reperfusion-induced arrhythmias, H862

metabolism  
hormone effects, embryonic intestine (chick), G65

insulin and IGF-I effects, glomerular mesangial cells, C411  
modulatory effects, VIP-induced gastric somatostatin release, E756

oral and intravenous, insulin secretion and, E349

output, cerebral utilization, fetal growth, E579

oxidation, hormone effects, embryonic intestine (chick), G65

phosphorylation, measurement, brain, E443

plasma, lowering by antipolytic agents, diabetes, E23

production  
hepatic, aging effects, awake state, E92

insulin effects on, fasting and, E700

release, hepatocytes, elasmobranch (skate), R801

response, stress, aging effects, E617

role in cephalic phase, postprandial thermogenesis, E625

spermatogenic cell metabolism of, gosy whole effects, C571

transport  
calcium effects, kidney epithelium (opossum), F217  
epithelial, interleukin 1 modulation, kidney, F879

fibroblasts, C628

insulin effects, skeletal muscle, E633

small intestinal epithelial cells, G355

tubular absorption, solute polarization during, cortical interstitium, F813

uptake  
cold-exposed skeletal muscle, E482  
during exercise, skeletal muscle, E555  
during hypoxia, fetus (lamb), E572  
fasting and, adults and newborns, E137

insulin effects, adipocytes, E39

insulin-stimulated, adenosine effects, myocardial, H970

utilization  
obesity and, white adipose tissue, E342

potassium depletion and, H250

D-Glucose, sodium-independent transport, renal basolateral membranes, F711

Glucose 6-phosphate  
calcium homeostasis and, islet endoplasmic reticulum, E121

muscle, insulin response, E231

tracers, brain, E310

Glucose-6-phosphate dehydrogenase, exercise, detraining, starvation, and refeeding effects, R648

Glutamate dehydrogenase system, mitochondrial redox state estimation, skeletal muscle, C587

Glutamic acid, depressor neuron action and, rostral medulla, H686

Glutamic-oxaloacetic transaminase, ischemia, liver and kidney, G753

Glutamine  
absorption and metabolism, jejunum, G264

extraction, renal ammoniagenesis and, F134

$\gamma$ -Glutamyltransferase, biliary catabolism, G1

Glutathione  
biliary catabolism of, G1

interstitial transudate, heart, H785

ischemia, liver and kidney, G753

**Glutathione (continued)**  
oxygen radical injury and, chief cells, G49

**Glycan chain**, ontogeny and effect of, lactoferrin binding to brush-border membrane (monkey), G580

**Glycerol**, adenylate cyclase activity and, collecting tubular cells (toad), C183

**Glycine**, absorption and metabolism, jejunum, G264

**Glycine hydrochloride**, dietary, plasma renin and plasma aldosterone dissociation, E187

**Glycocalyx**, microvascular endothelium, albumin binding to, H425

**Glycocholate**, stimulation of efflux from hepatocytes, arginine vasopressin, G732

**Glycoconjugates**, lectin-gold labeling, renal papilla, C450

**Glycogen**  
adaptations to exercise and, R877  
anaerobic metabolic rate, induced hypercapnia effects (turtle), R944  
energy provision, during exercise (fish), R302  
fasting effects, sex differences, C560  
hyperoxia and, bronchiolar epithelium, neonate, R755  
metabolism, hormone effects, embryonic intestine (chick), G65  
muscle, selective hepatic vagotomy effects, R602

**Glycogen synthase**, regulation, fasting and refeeding, muscle and adipose tissue, E720

**Glycolysis**, aging, exercise and diet effects, heart, H599

**Glycosides**  
cardiac  
membrane electrical properties and, smooth muscle cells, C423  
neurogenic vasoactive properties of, H148

**Glycylglycine**, liver, gut, kidney, and muscle, E588

**Glycyl-L-leucine**, metabolism, liver, gut, kidney, and muscle, E588

**GnRH**: *see* Gonadotropin-releasing hormone

**Gonadotropin**  
infrequent sampling, neuroendocrine-gonadal axis, men, E658  
peak-detection algorithms, E113  
receptor-mediated action, dietary fat effects, testes, E708  
regulation by glucocorticoids, E595

**Gonadotropin-releasing hormone**  
antifertility effects of, mating behavior in males and, E84  
luteinizing hormone and, food restriction effects, female, R616  
puberty induced by, pituitary and gonadal responsiveness, men, E652  
receptors, regulation by glucocorticoids, E595

**Gossypol**  
action, bioenergetic model, C564  
uncoupling, liver and spermatogenic cells, C571

**G protein**, direct gating, ion channels, H401

**Gracilis muscle**  
ouabain, neurogenic vasoactive properties, H148

**phospholipid peroxidation products in**, H578

**working**, oxygen pressure in individual fibers, H1179

**Growth**: *see also* Development; Maturation  
adaptation to exercise, chronic intermittent fasting and, R877  
bone, weightlessness effects, R78

**fetal**  
substrate uptake during hypoxia (lamb), E572  
systemic glucose allocated to cerebral use, E579

**gastrointestinal**, amiloride and, G408  
inhibitor, aberrant responses, kidney cells (monkey), F747

**intestinal**  
polyamines and their biosynthetic enzyme distribution, G194  
putrescine uptake, G81

**mechanical stretch effects**, E543

**tumor**, phorbol esters, angiogenesis and (chick), C318

**Growth hormone**  
disappearance from plasma, fetus and newborn (sheep), E318  
exercise and, hypoxia effects, R197  
responsivity, functional desensitization, E358

**secretion**, extracellular sodium inhibition, pituitary cells, E476

**ventromedial hypothalamic lesions**, radio-frequency vs. electrolytic, R917

**Growth hormone-releasing factor**  
GH secretion induced by, sodium ion effects, pituitary cells, E476  
pituitary responsivity to, intracellular GH pool depletion and, E358

**vascular conductance**, endocrine and exocrine glands, E435

**Guanosine diphosphate**  
binding, thermogenesis, aging effects, R457

**brown fat**, fasting and refeeding effects, R11

**mitochondrial**, aging, exercise, and thermogenesis, R908

**Guanosine monophosphate**, cyclic plasma,  $\alpha$ -human atrial natriuretic peptide and, small intestine, G814

**release**, cholinergic neurotransmission and, antral muscle, G201

**vascular effects**, septic aorta, R436

**vascular relaxation** and, hypertension, H163

**Guanosine triphosphate**  
binding protein, atrial potassium channels (chick, rat, guinea pig), H1200, H1224

**calcium homeostasis** and, islet endoplasmic reticulum, E121

**Guanosine triphosphate**, cyclic, protein kinase dependent on, inhibition by H8, C115

**Gut**: *see* Intestine

**H**

**H-8**, inhibition, protein kinase, C115

**$\alpha$ -hANP**: *see* Atrial natriuretic peptide, synthetic

**HDL**: *see* Lipoprotein, high-density

**Heart**  
adaptations, asynchrony effects, rest and exercise, awake state, H817

**adrenoceptors**: *see* Receptors

**adult** and newborn, different ATP-catabolism, H1091

**aging**, exercise and feeding effects, H599

**arteriolar density**, embolization and, microspheres, H636

**blood flow** and metabolite content, spatial heterogeneity, H344

**congenital defects**, pulmonary endothelial pulsation (lamb), C338

**control**, ouabain treatment and, H313

**delayed rectifier channel (chick)**, H192

**denervation**, renal response to volume expansion and, F780

**epinephrine release**, during left stellate ganglion stimulation, R659

**external work**, contractility and oxygen consumption, R933

**failure**  
congestive, neural control of renal function, R1017  
congestive, norepinephrine kinetics, E760

**experimental**, hormonal determinants of sodium excretion, R776

**experimental**, peripheral sympathetic vasoconstriction and, H727

**volume expansion**, increased ANF secretion after, R185

**function**  
bacterial shock and, H558  
dietary fish oil and, H494

**gap junction** channel activity, embryonic ventricle cells (chick), H170

**inosine** and adenosine, interstitial transudate concentration, H1125

**inotropism**, end-systolic pressure-volume relations and, H664

**inotropy** and gap junction conductance, cardiac myocytes, H1206

**interstitial transudate**, cellular markers, H785

**ischemic**, total left ventricular work, H894

**isolated working apparatus**, triiodothyronine effects, chronic diabetes, H265

**local hemodilution**, coronary hemodynamics during, H525

**mitochondrial membrane transitions in**, hibernation (squirrel), E378

**oxygen consumption**, low coronary perfusion effects, H292

**perfluorochemical-perfused**, albumin effects, H1105

**power matching**, optimal external efficiency, H279

**reflex**, prostaglandin  $I_2$ , R424

**reperfusion-induced arrhythmias**, glucose and mannitol, H862

**rise in resting tension**, hypoxia and calcium, H678

**sinuatrial valve**, right atrium (chicken), H584

**sodium currents**, scorpion toxin effects, H443

**transmural electrodes**, fabrication technique, H804

**valvular disease**  
mitral regurgitation, hypertrophy in, H1034  
severe pressure overload, H1099

**venular endothelial cells**, H1211

**Heart atria**  
myocyte sarcolemma, calcium ion inhibition of potassium channels, C397

**rate**, temperature and adrenergic stimulation effects, R840

response to changing plasma volume and, renal, F562

right, sinoatrial valve activation (chicken), H584

Heart cells: *see also* Myocytes

aggregates, phase-locked rhythms (chick), H1

contractile properties, H59

embryo, reoxygenation-induced calcium overload (chick), H1133

$\beta$ -receptors, acidosis effects (chick), H20

Heart-lung preparation, coronary vascular permeability, blood histamine levels, H912

Heart rate

adrenal gland and, fetus (lamb), R706

adrenoceptor-mediated effects on, H199

arterial pressure relations, alteration during head-out water immersion, awake state, R595

baroreflex, operant and classical conditioning, R1025

baroreflex-mediated cardioacceleration, ANF attenuation, R590

changes, sleep-wake cycle, computer analysis, H217

chemoreceptor-baroreceptor reflex interaction, anesthesia, R1

evaluation, blood pressure monitoring, H377

glucose kinetics, adrenergic blockade in infection and, E16

improved techniques for monitoring, H181

integration of sympathetic neural effects, AV conduction, H651

maximum responses to exercise, isoproterenol and, R834

neuropeptide Y injection and, posterior hypothalamic nucleus, H879

recovery, after exercise, age and training effects, H340

refeeding hypertension, dietary obesity and, R47

regulation, area postrema and, H963

temperature and adrenergic stimulation effects, R840

variability, spectral analysis (lizard), R242

vasopressin-mediated bradycardia, median preoptic nucleus in, H1172

Heart ventricles

dereivation, vasopressin release and, hemorrhage, R204

embryonic, delayed rectifier potassium current (chick), H192

fibrillation, glucose and mannitol, H862

function

afterload resistance effects, H658

regional ischemia, H894

Heart ventricles, left

afterload, optimal matching, H1051

blood flow, aortic pressure reduction and, H361

cavity shape change, site of regional ischemia and, H547

distension, dynamic changes in venous outflow, R212

end-systolic pressure-volume relations, model, H1113

function

chronic endotoxemia (swine), H324

mitral regurgitation, hypertrophy in, H1034

interstitial fluid, adenosine, during catecholamine stimulation, H207

negative work, oxygen-saving effect, H34

performance, thyroid state effects, H81

power matching, arterial load, H279

septal-lateral dimension, measurement method, H801

wall, regional curvature radius, H1010

wall ischemia, functional consequences, H1065

Heart ventricles, right

hypertrophy: *see* Hypertrophy

pressure, volume and, determination, H622

volume measurement, H619

Heat

acclimation, cardiac output distribution in, R109

loss, IR thermography and thermocouple measurement, pinna, R389

stress, environmental, vasoconstrictor systems and (baboon), H11

Hematocrit

blood flow, cerebral oxygen extraction and, H156

coronary, local hemodilution, H525

$\alpha$ -hANP effects and, end-stage renal failure, F895

microcirculatory, hemodilution effects, H411

norepinephrine effects, fetus (sheep), H734

tube, red blood cell suspensions, H238

Hematopoiesis, phenamyl inhibition of, C122

Hemodilution

local, coronary hemodynamics during, heart, H525

oxygen transport and, striated muscle (hamster), H331

skin microcirculation and, H411

Hemoglobin, different types, placental oxygen transport and (sheep), R585

Hemolytic plaque assay, amylase secretion, pancreatic acini, G664

Hemorrhage

adrenal gland and, fetus (lamb), R706

adrenergic-prostanoid control, newborn (pig), H671

cardiovascular and hormonal response, awake state, H947

central blood volume and pressure, awake state (monkey), H693

hemodynamic response to, adrenal medulla role in, R559

hypotensive, atrial natriuretic peptide system in, R56

locus coeruleus

monoaminergic activity, plasma corticotropin and, R289

noradrenergic turnover after, R296

vascular pressure-volume relations, measurement with acetylcholine, H115

vasopressin release during, ventricular receptor stimulation of, R204

Hemostasis, primary, platelet-activating factor and, H1218

Henle's loop

calcium absorption, basal and hormone-activated, F62

descending limb, permeability properties, F323

thin ascending limb, calcium effects on chloride transport, F232

Heparin, lipoprotein lipase uptake and, liver, G711

Hepatocytes

cytosolic pH effects, receptor-mediated endocytosis, C829

EGR receptors, insulin-dependent diabetes, E429

elasmobranch, L-alanine uptake (skate), R801

gluconeogenesis (bird), R903

gossypol uncoupling, comparative study, C571

hormone treatment of, phosphodiesterase activity after, E449

interaction, change in plasma albumin and, G465

pairs, gap junctions, C226

taurocholate and glycocholate efflux from, arginine vasopressin effects, G732

taurodehydrocholic acid uptake, G269

transmembrane potential, quinine effects, G795

Heterogeneity, spatial, skeletal muscle, C417

HETE: *see* Hydroxyeicosatetraenoic acids

Hexamethonium, peptide YY inhibition and, insulin release, E513

Hexokinase, decreased activity, paraventricular nucleus, hypertension and, R508

Hexose, transport, renal basolateral membrane, F711

Hexose monophosphate, shunt, epidermal growth factor and, kidney cells, C267

Heymann nephritis: *see* Nephritis

Hibernation

arousal from, cardiac arrhythmias during (hamster, groundhog, squirrel), R102

mitochondrial membrane transitions, heart (squirrel), E378

potassium compartmentalization, nuclear magnetic resonance evidence for, F401

uncoupling protein, brown fat mitochondria (hamster), R1035

Hindlimb, immobilization, mRNAs in atrophied skeletal muscle, 657, C651

Hippocampus, oxytocin receptors in, E31

Histamine

autoregulatory escape and (piglet), G560

blood flow changes and, renal, F470

blood levels, coronary vascular permeability and, H912

calcium and stimulus-secretion coupling, parietal cell, C130

chloride secretion and, intestinal, C53

dilation, pial arteries, newborn (pig), H1023

gastric secretion and, basal and stimulated (cod), G183

inhibition, blood flow autoregulation, intestinal (swine), G156

neuropeptide Y injections and, blood pressure, H879

release

modulation from fundic mucosal mast cells, G40

secretagogue and forskolin-stimulated, somatostatin effects (toad), G531

stimulation, gastric acid secretion, parietal cell, G33

Hormonal changes

fasting (penguin), R170

molting (penguin), R178

## SUBJECT INDEX TO VOLUME 254

Hormonal control, contractile activity, urachus, fetal (sheep), F25  
 Hormonal pulses, analyses, E786  
 Hormonal response  
     exercise, hypoxia and physical training effects, R197  
     hemorrhage, awake state, H947  
     water drinking, training effects, R417  
 Hormones: *see also* specific hormone  
     calcium absorption activated by, renal thick ascending limbs, F62  
     episodic secretion, neuroendocrine-gonadal axis, men, E658  
     glycogen and glucose metabolism and, embryonic intestine (chick), G65  
     gut, ontogeny and processing, G87  
     plasma, ventromedial hypothalamic lesions, R917  
     release, GABA effects, G723  
     treatment, phosphodiesterase activity after, hepatocytes, E449  
 Hybrid hormones, insulin release and, E454  
 Hybridization, intrinsic factor mRNA, developmental regulation, G913  
 Hydraulic conductance, single-vessel, oxygen modulation of, H317  
 Hydrochlorothiazide, electrolyte transport and, distal tubule (salamander), F80  
 Hydrocortisone, glucose and glycogen metabolism and, embryonic intestine (chick), G65  
 Hydrogen  
     gastric responses to  
         neonatal and maternal prostaglandins in, G142  
         prostaglandin effects, G378  
         secretion, inner medullary collecting duct cells, F391  
 Hydrogen-ATPase, proton-translocating, kidney medulla, F71  
 Hydrogen ions  
     proton influx, bone, during acidosis, neonate, F306  
     transport, secretory state, gastric, G856  
 Hydrogen peroxide, injury of chief cells, glutathione modulation of, G49  
 Hydrogen-potassium-ATPase blockade: *see* Blockade  
     gastric, secretory state and, G856  
     gastric acid secretion and, parietal cell, G33  
 Hydrophobicity, amino acid transport system (sand dollar), R485  
 Hydroxyapatite crystals, stimulation, inositol phospholipid metabolism, C554  
 $\beta$ -Hydroxybutyrate, fuel metabolism and, brain microvessels, E272  
 6-Hydroxydopamine  
     increased vascular response to, Dahl S kidney, F533  
     norepinephrine uptake and, jejunum, G135  
 Hydroxyeicosatetraenoic acid metabolism, cerebromicrovascular endothelium, C37  
     prostacyclin and, synthesis, coronary arterial endothelial cells, C8  
 Hydroxyl radical, role in Heymann nephritis, F337  
 5-Hydroxytryptamine: *see* Serotonin  
 25-Hydroxyvitamin D: *see* Vitamin D  
 Hypercapnia  
     arterial, vasomotion in cerebral microcirculation, awake state, H67

bone proton influx, neonate, F306  
     hypoxia and, renin, ACTH, and aldosterone during, awake state, R431  
     induced, anaerobic metabolic rate and (turtle), R944  
     opioid modulation of catecholamines, awake state, H72  
     renal vascular response, awake state, R552  
 Hypercarbia, cerebral oxygen extraction, blood flow response to hematocrit, H156  
 Hyperemia  
     coronary functional, norepinephrine-induced, adenosine deaminase effects, H417  
     reactive, endothelial recovery after, H1081  
 Hyperfiltration  
     diabetes, sodium restriction effects, F668  
     glomerular, protein-induced, prostaglandins in, F463  
     verapamil effects, remnant nephrons, F425  
 Hyperglucagonemia  
     electrical stimulation-induced, dorsal parabrachial nucleus, E468  
     whole-body leucine metabolism and, before and during meals (pig), E372  
 Hyperglycemia  
     adrenergic modulation, pancreas (sheep), R518  
     electrical stimulation-induced, dorsal parabrachial nucleus, E468  
     streptozotocin diabetes mellitus, E749  
 Hyperglycemic clamp, lack of exercise effects, insulin secretion, E537  
 Hyperinsulinemia, postprandial, obesity, GIP role in, E767  
 Hyperkalemia, renin release, renal hemodynamics and, F704  
 Hypermetabolism, remnant kidney, chronic renal failure, F267  
 Hypernatremia, plasma angiotensin II and, subfornical organ neurons, R746  
 Hyperosmosis, calcium signals, exocytosis and, neutrophils, C709  
 Hyperoxia  
     brain, fluorometry (gerbil), C699  
     bronchial epithelium and, neonate, R755  
     serotonin transport and, plasma membrane vesicles (pig), C781  
 Hypertension  
     acute arterial, time course of tubule response, F601  
     ANP regulation, sodium pump inhibitor, brain, F912  
     calcium channel agonist, increased vascular response to, F533  
     circulating inotropic factor in, H230  
     genetic, cerebral artery vasomotion, H28  
     glomerular injury, after renal infarction, F856  
     Goldblatt, intrarenal renin-angiotensin system, F345  
     hypoxic pulmonary, vascular changes and, angiotensin II effects, H500  
     left atrial, lung lymph flow, hypoxia effects, newborn (lamb), H487  
     mineralocorticoid, sodium retention, vasopressin-induced, F739  
     norepinephrine release, paraventricular hypothalamic nucleus, H993  
 portal  
     intestinal capillary filtration, G339  
     somatostatin effects, G322  
 pulmonary  
     endothelial pulsation (lamb), C338  
     monocrotaline pyrrole and, H258  
 refeeding, dietary obesity and, R47  
 renal, hexokinase activity in paraventricular nucleus, R508  
 response to acute and chronic static exercise, H592  
 spontaneous, gene expression, maturing kidney, F582  
 vascular relaxation, cGMP and, H163  
 venous, albumin equilibration, skin and lymph, H89  
 Hyperthermia, glucose kinetics, adrenergic blockade in infection and, E16  
 Hyperthyroidism, venous compliance, left ventricular performance and, H81  
 Hypertrophy  
     pressure overload, skinned myocardium, H517  
     right ventricular, after reversal of pressure overload, H1099  
     skeletal muscle fibers, clenbuterol and, E726  
     volume overload, mitral regurgitation, closed-chest model, H1034  
 Hypocalcin, calcium uptake and, gill (trout), R891  
 Hypocarbia, cerebral oxygen extraction, blood flow response to hematocrit, H156  
 Hypoglycemia  
     diabetes and, fuel metabolism by brain microvessels, E272  
     insulin and glucagon effects, during exercise, E713  
     insulin-induced, awake state, liver, E214  
 Hypoperfusion, pulmonary vasoregulation after, awake state, H976  
 Hypophsectomy, energy balance and brown fat activity after, obesity and, E162  
 Hypoproteinemia, recovery and, edema, F887  
 Hypotension  
     aortic pressure, left ventricular blood flow distribution and, H361  
     cerebral blood flow, adrenergic-prostanoid control, newborn (pig), H671  
     drinking, urinary response to angiotensin II and, R69  
     extrarenal potassium tolerance, parathyroid hormone effects, F385  
     posthemorrhage, baroreflex compensation for, H1074  
     renal nerve activity, CNS in, R761  
     vagal block and (monkey), R857  
 Hypothalamic neurons, sympathetic nerve-related activity, R257  
 Hypothalamic nucleus, posterior, neuropeptide Y injection effects on blood pressure, H879  
 Hypothalamic-pituitary-gonadal axis, sexual maturity, men, E652  
 Hypothalamic-releasing factors, pituitary responsiveness to, intracellular GH pool depletion and, E358  
 Hypothalamus  
     ANP regulation, sodium pump inhibitor, brain, F912  
     feeding patterns, corticosterone effects, R222

## SUBJECT INDEX TO VOLUME 254

GABA, sympathetic outflow to cardiovascular system and, awake state, R680  
 paraventricular nucleus  
 afferent renal nerve pressor response and, R531  
 angiotensin II and hypernatremia effects, R746  
 electrical stimulation of, plasma renin activity and, R325  
 pathogenesis of fever, pattern differences, R633  
 pathophysiology of atrial peptides and, E1  
 preoptic lesions, sodium excretion and, R84  
 pyrogenicity of interferon, R499  
 sympathetic nerve discharge and, anesthesia, R249  
 ventromedial lesions, food and light effects on nor-epinephrine, R821  
 lesions, radio-frequency vs. electrolytic, R917  
 Hypothermia, different ATP-catabolism, adult and newborn hearts, H1091  
 Hypothyroidism  
 tissue 5'-monoiodinase activity and, fetus (sheep), E337  
 venous compliance, left ventricular performance and, H81  
 Hypotonicity, volume response, interleukin 2-stimulated T-lymphocytes, C286  
 Hypovolemia  
 locus coeruleus  
 monoaminergic activity, plasma corticotropin and, R289  
 noradrenergic turnover increase, R296  
 Hypoxemia  
 opioid modulation of catecholamines, awake state, H72  
 reperfusion injury, gastric ischemia and, G366  
 Hypoxia  
 adenosine production during, 5'-nucleotidase and, F191  
 adenosine release during, aortic endothelial cells (pig), H223  
 brain, fluorometry (gerbil), C699  
 calcium and, resting tension, heart, H678  
 calcium flux, during reoxygenation, heart cells, embryo (chick), H1133  
 cellular markers, interstitial transudate, heart, H785  
 exogenous substrate uptake during, fetus (lamb), E572  
 global myocardial, coronary vasodilation, adenosine deaminase in (guinea pig), H1004  
 hydraulic conductance and, single-vessel, H317  
 hypercapnia and, renin, ACTH, and aldosterone during, awake state, R431  
 hypoxic, chemoreceptor control, pituitary blood flow, H742  
 intermittent, structural vascular adaptation and, embryo (chick), H1194  
 lung lymph flow and, newborns with left atrial hypertension (lamb), H487  
 physical training and, hormonal response to exercise, R197  
 pulmonary hypertension, angiotensin II effects, H500

renal vascular response, awake state, R552

I

IGF: *see* Insulin-like growth factor  
 IGF-I: *see* Insulin-like growth factor I  
 ileocecal sphincter, opiate receptor agonists, sites of action, G224  
 ileum  
 adrenergic receptors, calcium channel blockers interact with, G586  
 basolateral membrane, estrogen effects, G687  
 luminal contents, digestive motor patterns, G552  
 modulation of sodium-potassium-ATPase, bile salts and, G761  
 sodium chloride absorption, ileum, G329  
 Imidazole, jejunal capillary exchange capacity, G695  
 Imipramine, serotonin extraction and, myocardium, H570  
 Immersion  
 changing plasma volume, renal response, cardiac atria role in, F562  
 head-out  
 altered heart rate-arterial pressure relations, awake state, R595  
 ANF during, R235  
 renal and endocrine responses, R977  
 Immunocytochemistry, gene expression, renin and angiotensin, maturing kidney, F582  
 Immunodissection, mitochondria-rich cells, medullary collecting tubules, F907  
 Impedance, characteristic, systemic arterial bed, model, H609  
 Indomethacin  
 control of blood flow, vasa recta, F417  
 fever, interferon-induced, R499  
 neonatal and maternal, gastric mucosal response to hydrogen, G142  
 patent ductus arteriosus and, renal function with, preterm (lamb), F38  
 Infant: *see also* Neonate, Newborn  
 milk calcium absorption and transport, G12  
 preterm, PDA and indomethacin, renal function with (lamb), F38  
 Infarction  
 myocardial  
 dobutamine effects, H855  
 increased ANF secretion after volume expansion, R185  
 risk area size and location, H473  
 Infection, bacterial, adrenergic blockade in, glucose kinetics and, E16  
 Inosine, interstitial transudate concentration, heart, H1125  
 D-myo-Inositol 1,4,5-triphosphate, involvement, lithium-induced polyuria, R863  
 Inositol phosphates, acid secretion and, parietal cell, G622  
 Inositol phospholipids, metabolism, hydroxyapatite crystals and, C554  
 Inositol triphosphate, calcium homeostasis and, islet endoplasmic reticulum, E121  
 Inotropic factor, humoral, hypertension, H230  
 Insulin  
 absorption, flow rate and perfused load effects, proximal tubules, F802

action  
 after acute exercise, E248  
 changes with aging, euglycemic clamp, awake state, E92  
 glucose transport, skeletal muscle, E633  
 binding  
 cell surface, endocytosis and, adipocytes, E365  
 cultured kidney cell line (opossum), E601  
 blockade, infection, glucose kinetics and, E16  
 CCK-stimulated bile flow and, G864  
 changes, breeding fast (penguin), R170  
 deficiency, diabetes, autophosphorylation of EGF receptor, E429  
 electrical stimulation-induced hyperglycemia, dorsal parabrachial nucleus, E468  
 fasting and, adults and newborns, E137  
 feeding and, hepatic control, R969  
 fuel metabolism and, brain microvessels, E272  
 glucagon and leucine metabolism, meal effects (pig), E372  
 glucose production, proteolysis and, fasting, E700  
 glucose uptake stimulated by, adenosine effects, myocardial, H970  
 hypoglycemia and, exercise, E713  
 IGF receptors, gastrointestinal epithelium, G457  
 ketone body production by, fatty acids and, liver, E694  
 levels  
 extrarenal, parathyroid hormone effects, F385  
 selective hepatic vagotomy effects, R602  
 load, gastric, metabolic fate in unrestrained rats, E407  
 metabolism, renal, E419  
 organ-specific adaptations, streptozotocin diabetes mellitus, E749  
 PAF and, glucose kinetics, E193  
 processing, kidney cells (opossum), C822  
 receptors and effects, glomerular mesangial cells, C411  
 release  
 $\beta$ -adrenergic-stimulated, peptide YY effects, E513  
 episodic, pancreas, E384  
 glucagon and secretin, E454  
 pancreas, fetal and neonatal, E167  
 resistance  
 adipocytes, E39  
 ethanol and acetate effects, E175  
 plasma glucose, diabetes, E23  
 uremia, E394  
 response  
 stress, aging effects, E617  
 whole-body and muscle carbohydrate metabolism, E231  
 role in cephalic phase, postprandial thermogenesis, E625  
 secretion  
 dose-dependent effects of glucose, E349  
 islet endoplasmic reticulum, calcium homeostasis and, E121  
 lack of exercise in trained subjects, E537  
 obesity, GIP role in, E767

## SUBJECT INDEX TO VOLUME 254

Insulin (*continued*)  
 phosphoinositide metabolism and, islets, E609  
 somatostatin release and, VIP-induced, stomach, E756  
 starvation and, muscle branched-chain  $\alpha$ -keto acid dehydrogenase and, E292  
 stimulation, sugar transport, skeletal muscle, endotoxemia and bacteremia, R673  
 therapy, microcomputer-assisted conventional, E237  
 uptake, during exercise, skeletal muscle, E555  
 ventromedial hypothalamic lesions, radio-frequency vs. electrolytic, R917  
 Insulin-like growth factor, receptors: *see* Receptors  
 Insulin-like growth factor I, receptors and effects, glomerular mesangial cells, C411  
 Interdigestive cycle, phase II antral motility, pancreatic secretion during, G249  
 Interferon, pyrogenicity of, R499  
 Interleukin, cytokines and, acute phase response, G450  
 Interleukin 1  
     aging and, C-reactive protein, leukocytes and fever after, R401  
     modulation, epithelial glucose and amino acid transport, kidney, F879  
     pyrogen fever, genesis of, prostaglandin E<sub>2</sub>, R463  
 Interleukin-1 $\alpha$ , recombinant, experimental fever, pattern differences, R633  
 Interleukin 2, T-lymphocytes stimulated by, volume response to hypotonicity, C286  
 Intestinal mucosa, growth, specific receptors for EGF, G429  
 Intestine  
     absorption  
         adrenergic receptors, G586  
         aromatic acids, aging effects, G630  
         luminal stirring, physiological measurement, G843  
         adaptation, polyamines and their biosynthetic enzymes, G194  
         afferents, cardiovascular function and, H354  
         calcium absorption, during maturation, G74  
         capillary filtration, portal hypertension, G339  
         chloride transport  
             ATP-dependent (seahare), R127  
             histamine effects, C53  
         dipeptide and constituent amino acid metabolism, E588  
         embryonic, glycogen and glucose metabolism, hormone effects (chick), G65  
         hypertrophy, streptozotocin diabetes mellitus, E749  
         ion transport, enteric nerves, diabetes and, G444  
         ischemic, xanthine oxidase, G768  
         microvillus membranes, EGF receptors, G429  
         motility: *see* Motility  
         norepinephrine release, H1187  
         plasma protein loss, ethanol-induced, 5-lipoxygenase products and, G483

rubidium absorption, aldosterone and carbon dioxide effects, G898  
 small and large bowel transit, calcitonin inhibition, G920  
 taurine transport, G334  
 vascular response, venous pressure elevation (piglet), G658  
 Intestine, small  
     amylase secretion, during feeding, G878  
     ascorbic acid, transport and metabolism, G824  
     epithelial cells, differentiation by extracellular matrix, G355  
     increased plasma cGMP, after  $\alpha$ -human atrial natriuretic peptide, G814  
     lymph propulsion from, lymphatic pathways and, G389  
     milk calcium absorption, infant, G12  
     putrescine uptake characteristics, G81  
 Intrinsic nerves, circular muscle, esophagus (opossum), G107  
 Iodoacetate, adenosine release and, aortic endothelial cells (pig), H223  
 Iodoantipyrine, autoradiography, gastric mucosal blood flow, G566  
 Iodopindolol,  $^{125}$ I-labeled,  $\beta$ -adrenergic receptors, skeletal muscle, E795  
 Ionic channels, direct G protein gating, H401  
 Ionomycin, peritubular calcium and, collecting tubule response to ADH and, F240  
 Ionophore A23187  
     arachidonic acid metabolism, alveolar macrophages, C809  
     intracellular calcium, eccrine sweating, C310  
 Ionophores, synthetic, blockade by copolymers, C20  
 Ions  
     exchange mechanisms, pH, pancreatic ductal cells, G925  
     mucosal, transport, intestinal anaphylaxis, G307  
     muscle, intense contraction, hindlimb, R117  
     transport  
         epithelial cells, distal colon, G502  
         mediated by copolymers, C20  
         pancreatic acinar, C621  
         rectal, cystic fibrosis, C719  
         secretory and absorptive airway epithelia, C835  
         tracheal epithelium, fetal and adult, C691  
 Ischemia  
     anterior and posterior wall, left ventricle, H1065  
     calcium flux, during reoxygenation, heart cells, embryo (chick), H1133  
     cellular markers, interstitial transudate, heart, H785  
     cerebral, CNS in renal nerve activity, R761  
     coronary, risk area size and location, H473  
     free radicals and, sodium-potassium-ATPase activity, kidney (pig), C330  
     gastric, oxygen radicals and, G366  
     intestinal, xanthine oxidase, G768  
     liver and kidney, xanthine oxidase in, G753  
     muscle, leukocyte depletion effects on vascular injury, H823  
     myocardial, fMLP effects, H481  
 newborn heart, ATP-catabolism, H1091  
 regional, left ventricular cavity shape change and, H547  
 renal, gentamicin nephrotoxicity, F574  
 reversible, recovery of function, awake state, H102  
 subendocardial, aortic pressure and blood flow distribution, left ventricle, H361  
 Ischemia-reperfusion injury, improvement, ATP-magnesium-chloride pretreatment, H702  
 Isoproterenol  
     adenylate cyclase activity and, collecting tubular cells (toad), C183  
      $\beta$ -adrenergic responsiveness, food deprivation and, R33  
 ANF and, opercular epithelium (killifish), R27  
 brown adipocyte proliferation, C175  
 cardiac function and, H494  
 chloride channel blocker and, corneal epithelium (bullfrog), C519  
 exercise and, maximum heart rate responses, R834  
 inotropy and gap junction conductance, cardiac myocytes, H1206  
 intracellular calcium and, eccrine sweating, C310  
 MDCK cells, F374  
 membrane electrical properties and, smooth muscle cells, C423  
 peptide YY inhibition and, insulin release, E513  
 stimulation with, individual vessels in tenuissimus muscle, H631  
 temperature and, sinoatrial frequency, R840  
 triiodothyronine effects, myocardial dysfunction, chronic diabetes, H265  
 4-Isothiocyanato-tempo, plasma albumin change and, hepatocytes, G465  
 Isotopes  
     dilution techniques, free fatty acid metabolism, E562  
     glucose, brain, E310  
     radioactive, gluconeogenesis during exercise and recovery, E518  
 stable  
     calculation of substrate flux, E526  
     doubly labeled water method, infant, R622

## J

Jejunum, sucrase-isomaltase degradation, diet effects, G907  
 Jejunum  
     ammonia production, intraluminal amino acids, G264  
     growth, amiloride and, G408  
     inverted rings, aging effects on absorption of amino acids, G630  
     longitudinal muscle, increased responsiveness, G124  
     luminal stirring, physiological measurement of, G843  
     myoelectrical activity, exercise and feeding effects, G741  
     norepinephrine uptake, angiotensin II effects, G135  
     postprandial capillary exchange capacity, thromboxane synthesis inhibitors and, G695  
     taurine transport, ontogenesis of, G870

Joint, knee, torque production (frog), C759, C769

Junction

gap

cardiac, embryonic ventricle cells (chick), H170

hepatocyte pairs, C226

inotropy and, cardiac myocytes, H1206

intercellular communication between ciliated cells, C63

neuromuscular, molecular events in synaptogenesis, C345

tight

formation, fatty acid effects, C432

microfilaments and, T84 monolayers, G416

Juxtaglomerular apparatus, renin release, during hyperkalemia, F704

## K

Kaliuresis, sodium-potassium-ATPase and, renal memory, F845

Kallikrein, hyperfiltration and, diabetes, F202

Ketanserin

extraction, myocardium, H570

serotonin effects and, blood flow, finger, H889

Ketogenesis, fatty acid-independent inhibition of, liver, E694

$\alpha$ -Ketoisocaproate

insulin effects, glucose and proteolysis, during fasting, E700

whole-body metabolism, meal effects (pig), E372

Ketone body, production, fatty acid-independent inhibition of, liver, E694

Kidney

adaptation, hypotensive hemorrhage, atrial natriuretic peptide role in, R56

afferent nerve pressor response, paraventricular nucleus contribution to, R531

ammoniogenesis, glucocorticoids and, F134

arterioles, characterization of  $\alpha$ -adrenoceptors, F178

atrial peptide effects, awake state, R161

blood flow: *see* Blood flow

brush border, chloride transport, F114

calcitonin metabolism, F593

capillary membranes, electrophysiology of, gel concept and Starling model, F364

collecting duct, lectin-gold labeling of glycoconjugates, C450

cortex: *see* Kidney cortex

cortical collecting duct, sodium-potassium-ATPase, aldosterone actions on, F689

Dahl S, calcium channel agonist to, F533

dipeptide and constituent amino acid metabolism, E588

DMPS activity and excretion, F871

eicosanoid production, pregnancy and, E687

endocrine responses and, head-out water immersion, R977

epithelium, phosphate transport, calcium and (opossum), F217

extrarenal potassium tolerance, parathyroid hormone, F385

failure

end-stage, plasma clearance and  $\alpha$ -HANP effects, F895

glomerular hemodynamic adaptations, verapamil effects, F425

induced by converting enzyme inhibition, prostanoins in, F358

microvascular prostanooid synthesis in, F684

function

ANF effects, nephrotic syndrome and, F211

edema-forming states, neural control, R1017

hormonal determinants of, experimental heart failure, R776

indomethacin and PDA in, preterm (lamb), F38

neurohormonal regulation, during development (sheep), F771

opioids in respiratory failure and, awake state, H72

pentobarbital effects (monkey), R727

glomerulus: *see* Kidney glomerulus

gluconeogenesis (bird), R903

glucose and amino acid transport, interleukin 1 modulation, F879

hemodynamics

ANP and amiloride effects, tubular sodium handling, F521

autoregulation, model (chicken), R925

during hyperkalemia, F704

sex differences, F223

sodium restriction effects, diabetes, F668

sodium retention, hypoproteinemia and, edema, F887

hypertrophied, renal nerves and sodium excretion, F32

hypoperfusion, gentamicin nephrotoxicity and, F574

immunoreactive atrial natriuretic factor, endotoxemia model (sheep), R567

infarction, progressive glomerular injury after, F856

inner medullary collecting duct cells, hydrogen secretion mechanisms, F391

insulin and cytochrome c metabolism, differences, E419

ischemic

membrane-bound sodium-potassium-ATPase activity (pig), C330

xanthine oxidase in, G753

maturing, renin and angiotensin gene expression in, F582

medulla: *see* Kidney medulla

metabolic/excretory coupling, F145

microvessels, method for isolation, F291

5'-monodeiodinase activity, fetus (sheep), E337

PAF and PDGF effects, calcium and phospholipase activity, mesangial cells, F87

papilla: *see* Kidney papilla

phosphate carrier, brush-border membrane vesicles, F329

postprandial hemodynamics, prostaglandins and, F463

potassium excretion, homeostatic regulation, model (sheep), R381

pressure-natriuresis, sodium and aldosterone effects, F697

PTH metabolism, E740

purified prolactin receptors (toad), C372

remnant, hypermetabolism and progression of failure, F267

response

atrial natriuretic factor, angiotensin II effects, R453

cardiac denervation and, F780

changing plasma volume, cardiac atria role in, F562

natriuretic peptide (sheep), F634

volume expansion

water drinking, exercise training effects, R417

sodium excretion, interstitial hydrostatic pressure effects, F527

sodium homeostasis, excretion and equilibration rates, R1001

sodium-potassium-ATPase mRNA levels, thyroid hormone regulation of, C323

soluble 5'-nucleotidase, ATP-inhibited, F191

structure, standard nomenclature, F1

sympathetic activity, spinally mediated inhibition, R655

tubules: *see* Kidney tubules

vasa recta, blood flow, converting-enzyme inhibitor effects, F492

vascular bed,  $\alpha$ -adrenoceptor responses (sheep), R277

vasodilatory capacity, amino acid infusion effects, pregnancy, F650

venous occlusion, spinoreticular cell responses to, R268

vitamin D deficiency, embryo (quail), E639

Kidney cells

collecting tubular, adenylate cyclase activity in, phorbol ester effects (toad), C183

epithelial

aminoglycoside-induced alterations in apical membranes, C251

growth-regulatory responses (monkey), F747

glomerular mesangial, insulin and IGF-I effects, C411

hexose monophosphate shunt, epidermal growth factor and, C267

insulin processing (opossum), C822

medullary, osmoregulation by, C788

mitochondria-rich, immunodissection, F907

nucleotide levels, modulation of, tubules, F311

potassium ion transport, electrode sandwich technique (frog), F608

tetraethylammonium transport, F351

Kidney cortex

acid-base effects, substrate accumulation and pH gradient, mitochondria, F863

interstitium, solute polarization, F813

Kidney glomerulus

ANF receptor regulation, sodium and water metabolism changes, F51

angiotensin receptors, intrarenal renin-angiotensin system, F345

disease, hydroxyl radical role in, F337

eicosanoid production, pregnancy and, E687

experimental membranous nephropathy, angiotensin II and, F500

hemodynamic adaptations, remnant nephrons, F425

Kidney glomerulus (*continued*)  
 hemodynamics  
 prostaglandins in, F463  
 vasoregulatory hormones, diabetes, F202  
 membrane permeability, postexercise proteinuria, F277  
 progressive injury, limited renal infarction, F856  
 prostaglandin interactions, F184  
 Kidney medulla  
 blood flow: *see* Blood flow  
 chloride transport, calcium effects, thin ascending limb, F232  
 proton-translocating ATPase from, F71  
 urea transport, osmotic stability of red cells and, C669  
 Kidney papilla  
 collecting duct  
 atrial natriuretic peptide effects, F477  
 mechanisms of hydrogen secretion, F391  
 glycoconjugates, lectin-gold labeling, C450  
 Kidney tubules  
 absorption, solute polarization during, cortical interstitium, F813  
 cell nucleotide levels, modulation of, F311  
 collecting, adenylate cyclase activity, phorbol ester effects (toad), C183  
 cortical collecting  
 ADH-induced vacuoles, F719  
 calcium and ADH action, F240  
 potassium adaptation, F845  
 sodium-potassium-ATPase, aldosterone actions on, F689  
 vasopressin and sodium absorption, hypertension, F739  
 distal, sodium chloride electroneutral transport (salamander), F80  
 gluconeogenesis (bird), R903  
 medullary collecting  
 immunodissection of mitochondria-rich cells, F907  
 protein phosphorylation, F512  
 proximal  
 calcitonin metabolism, F593  
 calcium uptake, extracellular acidosis effects, C839  
 cell pH, luminal chloride effects, F677  
 chloride transport, F114  
 complications of paracellular pathway, F297  
 contraluminal transport systems, secretion of organic anions, F453  
 fluid secretion in (fish), R154  
 glucose and amino acid transport, interleukin 1 modulation, F879  
 insulin absorption, flow rate effects, F802  
 metabolic/excretory coupling, F145  
 L-proline transport by luminal membrane vesicles, F628  
 prostaglandin inhibition of adenylate cyclase, C304  
 response to acute arterial hypertension, F601  
 salicylate transport, F554  
 utilization of metabolic substrates, F407  
 proximal convoluted  
 flow dependence of bicarbonate transport, F851

phorbol myristate acetate and dioctanoylglycerol effects on transport, F9  
 potassium channel, F105  
 SITS-sensitive basolateral anion, F828  
 reabsorption, postexercise proteinuria, F277  
 sodium-potassium-ATPase activity, high-salt diet and, F795  
 vasoressin receptors, downregulation by dehydration, C404  
 Kininase II, vascular actions of bradykinin and, H1042  
 Kinins, immunoreactive, urinary excretion, sodium balance effects, F484

L

Lacrimal gland  
 plasma membrane, protein kinases, G543  
 stimulation of secretion, peptides, G300  
 Lactate  
 anaerobic metabolic rate, induced hypcapnia effects (turtle), R944  
 production  
 early endotoxin shock, E45  
 gossypol effects, C564  
 pyruvate and, isotopic equilibration, E532  
 release, cold-exposed skeletal muscle, E482  
 uptake, during hypoxia, fetus (lamb), E572  
 Lactate dehydrogenase, extracellular acidosis effects, proximal tubules, C839  
 Lactoferrin, specific binding, brush-border membrane (monkey), G580  
 $\beta$ -Lactoglobulin, intestinal anaphylaxis, G307  
 Lamellar body, type II lung cells and, elemental composition, C614  
 Larvae, echinoid, amino acid transport system (sand dollar), R485  
*Latissimus dorsi*, stimulated muscle fibers, <sup>31</sup>P-NMR spectroscopy, C258  
 Lectin-gold, cytochemistry, labeling of papilla, C450  
 Length-tension relations, longitudinal muscle, jejunum, G124  
 Leucine  
 absorption and metabolism, jejunum, C264  
 dietary, compartmentation and, R688  
 incorporation, mixed skeletal muscle protein, E208  
 insulin effects, glucose and proteolysis, during fasting, E700  
 muscle, starvation and diabetes effects, E292  
 whole-body metabolism, hyperglucagonemia and, meal effects (pig), E372  
 Leukocytes  
 after central interleukin 1 and  $\alpha$ -melanocyte-stimulating hormone, aging and, R401  
 depletion, skeletal muscle ischemia and, H823  
 polymorphonuclear, assessment of sodium-hydrogen exchange activity, C272  
 Leukotrienes, mediation, ethanol-induced gastric mucosal damage, G117  
 Leukotriene B<sub>4</sub>, synthesis, tissues, intestine, G483  
 Leukotriene C<sub>4</sub>, secretion and circulation, pancreatic, G849

Leukotriene D<sub>4</sub>, receptor: *see* Receptors  
 Levator ani muscle, rectal distension effects, G100  
 LH: *see* Luteinizing hormone  
 Lidocaine  
 action potentials and, ventricular myocytes, H1157  
 capsaicin action, bronchoconstriction, R845  
 Light, feeding and, norepinephrine turnover, R821  
 Linoleic acid, gonadotropin action and, testes, E708  
 Lipids  
 biliary secretion, Triton WR-1339-induced changes, G346  
 cardiac, fasting effects, sex differences, C560  
 dynamics, estrogen effects, ileal basolateral membrane, G687  
 infusion, antropyloroduodenal motor responses, G671  
 membrane, heart, hibernation and (squirrel), E378  
 membrane composition, thermal acclimation and (crayfish), R870  
 peroxidation, membrane-bound sodium-potassium-ATPase activity, kidney (pig), C330  
 peroxidation products, skeletal muscle, H578  
 proteins and, utilization in fasting (penguin), R61  
 tight junction formation and, MDCK cells, C432  
 Lipogenesis, exercise, detraining, starvation, and refeeding effects, R648  
 Lipopolysaccharides, pathway, alveolar macrophages, C809  
 Lipoprotein  
 high-density, cholesterol ester, uptake by fat cells, E667  
 Triton WR-1339-induced changes, G346  
 Lipoprotein lipase  
 brown fat, cold-induced  $\beta$ -adrenergic recruitment, E155  
 uptake, liver, G711  
 Lipoxygenase  
 mediator, tubuloglomerular feedback, F642  
 pathway, alveolar macrophages, C809  
 5-Lipoxygenase  
 gastric damage, ethanol-induced, G117  
 products, ethanol-induced intestinal plasma protein loss, G483  
 Lithium  
 movements, resting and activated neutrophils, C526  
 polyuria induced by, prostaglandin, cAMP, and vasoressin involvement, R863  
 Lithocholic acid, sulfates, calcium and, cholestasis and, G644  
 Liver  
 2,5-anhydro-D-mannitol effects, food intake, R150  
 adenylate cyclase, during aging, food restriction effects, E54  
 alanine uptake, urea synthesis and (pig), G602  
 amino acids, hepatocytes, elasmobranch (skate), R801  
 anion uptake, ERS and albumin, G463  
 blood flow: *see* Blood flow

## SUBJECT INDEX TO VOLUME 254

chronic intermittent fasting, adaptations to exercise and, R877  
 circulation: *see* Circulation  
 dipeptide and constituent amino acid metabolism, E588  
 feeding control, metabolism and, R969  
 fructose 2,6-bisphosphate, endurance and, adrenomedullation effects, R572  
 gluconeogenesis, during exercise and recovery, E518  
 gluconeogenesis (bird), R903  
 glycogen, selective hepatic vagotomy effects, R602  
 insulin receptor kinase activity, chronic uremia and, E394  
 ischemic, xanthine oxidase in, G753  
 ketone body production, fatty acid-independent inhibition of, E694  
 lipoprotein lipase uptake, G711  
 lymphatic function, after hepatic venous pressure elevation, G748  
 mast cells, histamine release, G40  
 modulation of sodium-potassium-ATPase, bile salts and, G761  
 5'-monodeiodinase activity, fetus (sheep), E337  
 nephrosis, protein synthesis, C634  
 nephrotic, albumin gene transcription, E676  
 neuraminidase-treated erythrocytes, sequestration of, H1167  
 portal blood flow, ethanol-induced increase, adenosine and, G495  
 protein synthesis, cytokine regulation, G450  
 PTH metabolism, E740  
 slices, renin substrate release, E389  
 somatostatin extraction, awake state, E214  
 LLC-PK<sub>1</sub> cells  
 apical membranes of, aminoglycoside-induced alterations, C251  
 tetraethylammonium transport, F351  
 Load  
 arterial, power matching, heart, H279  
 osmotic, chloride depletion metabolic acidosis, F15  
 perfused, insulin absorption and, proximal tubules, F802  
 Locus coeruleus  
 monoaminergic activity, after hemorrhage, R289  
 turnover, after hemorrhage, R289  
 Luciferin-luciferase, intracellular injection, C27  
 Luminal membrane vesicles, L-proline transport, pars recta of proximal tubule, F628  
 Lung  
 epinephrine-induced renin secretion, cardiac adrenoceptors, E265  
 hyperoxia, neonate, R755  
 injury, monocrotaline pyrrole and, H258  
 lymph, endotoxin administration (sheep), H833  
 lymph flow, hypoxia effects, newborns with left atrial hypertension (lamb), H487  
 neuraminidase-treated erythrocytes, sequestration of, H1167  
 type II cell, lamellar body and, C614  
 Luteinizing hormone  
 frequent sampling, neuroendocrine-gonadal axis, men, E658

GnRH and, food restriction effects, female, R616  
 GnRH effects, mating behavior in males, E84  
 peak-detection algorithms, E113  
 regulation by glucocorticoids, E595  
 sexual maturation, GnRH-induced, men, E652  
 subunit mRNA concentrations, during LH surge, E99  
 Lymph  
 hindpaw, equilibration of albumin in, H89  
 propulsion, small intestine, lymphatic pathways and, G389  
 Lymphatics  
 after venous pressure elevation, liver, G748  
 intestinal, lymph propulsion and, G389  
 Lysine, perfusion, postexercise, glomerular/tubular proteinuria, F277  
 Lysophospholipids, natriuretic and diuretic effects, F824  
 Lyso-platelet-activating factor, natriuresis and diuresis, F824  
 Lysosomal enzymes, release, neutrophils, C709  
 Lysosomes  
 insulin metabolism and, renal, E419  
 Triton WR-1339-induced changes, G346

**M**

Macronutrients, self-selection patterns, corticosterone administration effects, R222  
 Macrophages, alveolar, arachidonic acid metabolism, C809  
 Macula densa  
 response to acute arterial hypertension, F601  
 tubuloglomerular feedback, prostaglandins as mediators, F642  
 Magnesium  
 ANP effects and, papillary collecting duct, F477  
 cytosol composition and, relaxed skeletal muscle (frog), C591  
 intracellular chloride concentration and, method of measurement, C200  
 Magnesium-chloride, ATP and, pretreatment, ischemia-reperfusion injury, H702  
 Malic enzyme, exercise, detraining, starvation, and refeeding effects, R648  
 Mammary gland  
 oxytocin receptors in, E31  
 purified prolactin receptors, comparison with kidney (toad), C372  
 Mandibular gland, fluid secretion and energy supply, high dose of acetylcholine, G781  
 Manganese, contractile effects, cecum (guinea pig), G489  
 Mannitol  
 feeding and, hepatic control, R969  
 mechanisms of protection, reperfusion-induced arrhythmias, H862  
 Manometry, bombesin effects and, sphincter of Oddi, G361  
 Marker dyes, interstitial transudate, heart, H785  
 Mast cells, fundic mucosal, modulation of histamine release, G40

Maternal-fetal exchange, folate uptake, placental (guinea pig), C735  
 Maturation: *see also* Growth; Development  
 calcium transport, endoplasmic reticulum, G74  
 cellular, extracellular matrix, G355  
 sexual, pituitary-gonadal responsiveness, GnRH-induced puberty, men, E652  
 MDCK cells  
 intracellular free calcium in, isoproterenol and cAMP effects, F374  
 tight junction formation, fatty acid effects, C432  
 Meal: *see* Feeding  
 Meclofenamate, blood flow changes and, renal, F470  
 Medulla oblongata, ventrolateral, GABA receptors, depressor neuron effects, H686  
 Mefenamic acid, jejunal capillary exchange capacity, G695  
 $\alpha$ -Melanocyte-stimulating hormone, aging and, C-reactive protein, leukocytes and fever after, R401  
 Membrane  
 apical  
 aminoglycoside-induced alterations, LLC-PK<sub>1</sub> cells, C251  
 cAMP-induced activation of sodium channels, C802  
 chloride effects on cell pH, F677  
 basement: *see* Basement membrane  
 basolateral: *see* Basolateral membrane  
 lipid composition, overwintering strategy and, thermal acclimation (crayfish), R870  
 luminal: *see* Luminal membrane  
 microvillus  
 intestinal, receptors for EGF, G429  
 placenta, amino acid transport, C773  
 plasma, vesicles, serotonin transport, hyperoxia effects (pig), C781  
 positive properties, gap junctions in hepatocyte pairs, C226  
 potential: *see* Potentials  
 Menstrual cycle, vasopressin, osmoregulation of thirst and, R641  
 Mercuric chloride, renal microvascular, acute renal failure, F684  
 Mercury, activity and excretion, kidney, F871  
 Mesangial cells  
 cytosolic calcium and phospholipase activity, PAF and PDGF effects, F87  
 glomerular  
 calcium kinetics in, angiotensin II effects, F254  
 intracellular pH, angiotensin II and vasopressin effects, F787  
 Mesenteric artery, vasmotor activity, AP<sub>A</sub> and AP<sub>A</sub>, H828  
 Mesenteric vein, superior, increased plasma cGMP, after  $\alpha$ -human atrial natriuretic peptide, G814  
 Mesentery, capillary permeability, protein size effects (frog), H304  
 Metabolic control  
 analysis, scaled creatine kinase model, R949  
 compliance, insulin therapy, E237  
 feeding, 2,5-anhydro-D-mannitol effects, R150  
 Metabolic rate  
 ambient temperature, simultaneous measurement of, R229

Metabolic rate (*continued*)  
 anaerobic, induced hypercapnia effects (turtle), R944  
 Metabolic response, hepatic vagotomy, R602  
 Metabolites, tissue, induced hypercapnia effects (turtle), R944  
 Metal bellows, hydraulic manipulator, C577  
 Metallothionein, serum and liver, glucocorticoid role in, basal and stress conditions, E71  
 Metals, heavy, complexing agent, excretion, kidney, F871  
 Methacholine, somatostatin secretion and, antrum and fundus of stomach, G20  
 Methemoglobin, cerebral oxygen extraction, blood flow response to hematocrit, H156  
 Methotrexate, uptake, placenta (guinea pig), C735  
*N*-[2(Methylamino)-ethyl]-Sisquoinoline-sulfonamide: *see* H-8  
 2-(Methylamino)isobutyric acid, hepatocyte transmembrane potential, amino acid transport and, G795  
 $\alpha$ -Methylaminoisobutyric acid, transport, hepatocytes, elasmobranch (skate), R801  
 3-O-Methylglucose, insulin-stimulated transport, skeletal muscle, R673  
 3-O-Methyl-D-glucose, influx and efflux, fibroblasts, C628  
 $\alpha$ -Methylglucoside, glucose and amino acid transport, interleukin 1 modulation, F879  
*N*'-Methylnicotinamide, transport, renal brush-border membrane vesicles, F56  
 Methyltetrahydrofolate, uptake, placenta (guinea pig), C735  
 Microcirculation: *see also* Blood flow; Circulation  
 cerebral, vasoconstriction in, awake state, H67  
 cutaneous  
   capillary pressure and (bat), H772  
   hemodilution effects, H411  
 gastric mucosal, autoradiography, G566  
 gracilis muscle, oxygen tension of individual fibers, H1179  
 individual vessels, tenuissimus muscle, H631  
 intermittent hypoxia effects, vascular adaptation, embryo (chick), H1194  
 oxygen transport and, striated muscle (hamster), H331  
 perfluorochemical-perfused heart, albumin effects, H105  
 steroid hormone transport, uterus, E79  
 wall shear rate, arterioles, H1059  
 Microdialysis, striatal dopamine release, sinoaortic denervation and, R396  
 Micromanipulator, Huxley-style, hydraulic drive for remote control, C577  
 Microscopy  
 electron  
   lectin gold labeling of glycoconjugates and, renal papilla, C450  
   pulmonary endothelial pulsation (lamb), C338  
   fluorescence  
     ADH-induced vacuoles, cortical collecting tubule, F719  
     protein size effects on permeability, mesentery (frog), H304  
     intravital, wall shear rate in arterioles, H1059  
     quantitative, potassium and cell swelling, gallbladder, C643  
 Microspheres  
   arteriolar density and embolization, myocardium, H636  
   estimates of blood flow, G274  
   fluorocarbon-for-blood exchange, regional cerebral blood flow and, H719  
   neuraminidase-treated erythrocytes, sequestration of, H1167  
 radiolabeled  
   aortic pressure and blood flow distribution, left ventricle, H361  
   cerebral blood flow, fetus and newborn (lamb), H52  
   coronary hemodynamics during local hemodilution, H525  
 Microtubules, plasmalemmal reorganization and, estrogen effects, E775  
 Microvascular endothelium, albumin binding specific to, H425  
 Microvasculature  
   mesenteric, hydraulic conductance, oxygen modulation of, H317  
 renal  
   characterization of  $\alpha$ -adrenoceptors, F178  
   prostanoid synthesis, F684  
 Migrating motor complexes, cecum, G595  
 Milk  
   calcium, absorption and transport, infant, G12  
   lactoferrin binding, brush-border membrane (monkey), G580  
   maternal, prostaglandins, gastric mucosal response to hydrogen, G142  
 Mineral, homeostasis, vitamin D deficiency, embryo (quail), E639  
 Mineralization, vitamin D and, E402  
 Mineralocorticoids  
   hypertension, sodium retention, vasoressin-induced, F739  
   time-dependent actions, sodium-potassium-ATPase, cortical collecting duct, F689  
 Mitochondria, pH, temperature effects, red muscle (carp), R611  
 Mitose, brown adipocyte proliferation, C175  
 Models  
   bioenergetic, gossypol action, C564  
   cardiopulmonary response, endotoxin administration (sheep), H833  
   closed-chest, mitral regurgitation, hypertrophy in, H1034  
   cross bridges, smooth muscle, C99  
   cystic fibrosis, human rectum, C719  
   endotoxemia, immunoreactive atrial natriuretic factor (sheep), R567  
   end-systolic pressure-volume relations, left ventricular, H1113  
   kinetic, phosphate transport, renal brush-border membrane, F329  
   linear, muscle respiration, C548  
   mathematical  
     corticotropin-releasing factor, E104  
     vascular resistance in arteriolar networks, sartorius muscle, H1149  
   microvascular exchange, interstitial volume regulation and, H384  
 norepinephrine kinetics, sodium-restricted diet, E222  
 one- or two-compartmental, calculation of substrate flux, E526  
 potassium excretion, homeostatic regulation (sheep), R381  
 preterm, renal function (lamb), F38  
 proximal tubule, paracellular pathway, F297  
 renal hemodynamics, glomerular filtration rate autoregulation and (chicken), R925  
 scaled creatine kinase, metabolic control analysis, R949  
 serotonin extraction, myocardium, H570  
 Starling, renal capillary membranes, F364  
 systemic arterial bed, H609  
 temporal self-organized, calcium metabolism, R134  
 Wilson's disease, 25-hydroxyvitamin D metabolism, copper effects, E150  
 Molting, hormonal and metabolic changes (penguin), R178  
 Monocrotaline pyrrole, pulmonary injury and, H258  
 5'-Monodeiodinase, tissue activity, thyroid hormone effects, fetus (sheep), E337  
 Monosodium glutamate  
   fat cell dynamics, hypothalamic obesity, R740  
   pancreatic secretion, oral stimulation and, awake state, G424  
 Morphine, opiate receptor agonist sites of action, ileocecal sphincter, G224  
 Motilin  
   pancreatic secretion, phase II antral motility of interdigestive cycle, G249  
 receptors: *see* Receptors  
 Motility  
   antral, pancreatic secretion, interdigestive cycle, G249  
   antropyloroduodenal, lipid infusion and, G671  
   digestive, luminal contents of ileum, G552  
   esophageal, bolus viscosity and, G8  
   gastrointestinal  
     calcitonin receptor characterization (guinea pig), G789  
     CNS blockade by  $\kappa$ -opiate agonists, G802  
     sodium pump role in, proximal colon, C475  
   intestinal, lymph propulsion and, G389  
   jejunal, exercise effects, G741  
   migrating contractions, cecum, G595  
   pyloric sphincter, inductograph method of study, awake state, G650  
 mRNA: *see* Ribonucleic acid, messenger  
 Muscimol  
   depressor neuron action and, rostral medulla, H686  
   sympathetic outflow and, cardiovascular system, R680  
 Muscle  
   branched-chain  $\alpha$ -keto acid dehydrogenase, diabetes and starvation effects, E292  
   carbohydrate metabolism, insulin response, E231  
   diaphragm, force-frequency response (hamster), C365  
   dipeptide and constituent amino acid metabolism, E588

## SUBJECT INDEX TO VOLUME 254

distal circular, sources of calcium for, G808

glycogen synthase regulation, fasting and refeeding, E720

insulin action, aging effects, awake state, E92

metabolism, temperature effects on pH (carp), R611

respiration, linear model, C548

semitendinosus

- force and moment contributions to torque, arm (frog), C769
- sarcomere length and joint kinematics, hindlimb (frog), C759

skinned striated, length dependency of calcium, caffeine effects, C491

striated, oxygen transport, hemodilution effects (hamster), H331

Muscle, heart, pressure overload changes, species differences, H517

Muscle, skeletal

- arteriolar network, response to sympathetic nerve stimulation, H919
- atrophied

  - $\alpha$ -actin and cytochrome c mRNAs in, C651
  - mRNAs, clenbuterol effects, C657

- basal and insulin-stimulated sugar transport, endotoxemia and bacteremia, R673
- chronically stimulated,  $^{31}\text{P}$ -NMR, C258
- cold-exposed, oxygen consumption, nor-epinephrine effects, E482
- collagen synthesis, denervation and immobilization effects, R897
- contractile properties, clenbuterol effects, E726
- contraction, recovery and (frog), C107
- fast-twitch and slow-twitch, calcium release from sarcoplasmic reticulum, C459
- glucose transport, insulin action, E633
- glucose uptake, during exercise, E555
- glucose utilization, obesity and, E342
- insulin receptor kinase activity, chronic uremia and, E394
- metabolism in,  $^{31}\text{P}$ -NMR spectroscopy, 417
- microvascular exchange, simulation of, model, H384
- mitochondrial redox state in, glutamate dehydrogenase system estimation, C587
- mixed protein, leucine incorporation into, E208
- percutaneous needle biopsy, characterization of  $\beta$ -adrenergic receptors, E795
- phospholipid peroxidation products, H578
- postischemic, leukocyte depletion, H823
- relaxed, cytosol composition (frog), C591
- sympathetic escape, tissue oxygen during, H929
- tetanic stimulation, ion fluxes during, hindlimb, R117

Muscle, smooth

- aortic, stimulation, myoplasmic calcium-force relations, H840
- cholinergic neurotransmission, corpus cavernosum, H459
- colonic, electrotonic current spread, G702
- cross-bridge phosphorylation, model, C99

esophageal, electrophysiology of intrinsic nerves (opossum), G107

gallbladder, CCK receptor, G294

gastric, development of muscarinic receptor, G680

intraluminal artery, excitatory neurotransmission, H1142

longitudinal, contractility, jejunum, G124

membrane, intracellular pH, C213

proximal colon, membrane potential gradient, sodium pump role in, C475

relaxation, calcitonin receptor characterization (guinea pig), G789

urachus, contraction, fetal (sheep), F25

visceral, manganese contractile effects (guinea pig), G489

Muscle cells

- gastric smooth, calcitonin receptor characterization (guinea pig), G789
- sarcolemmal components in, quantitative determination, C1
- smooth

  - airway, calcium currents in, C793
  - CCK-8 effects on contractile motility (guinea pig), G819
  - gastric, motilin receptors on, G210
  - membrane electrical properties of,  $\beta$ -adrenergic actions, C423

- vascular smooth

  - binding of nifedipine binding (pig), C45
  - proteins, seeding density and time effects, C235

Muscle fibers

- developing

  - myosin transitions in, C605
  - oxidative potential in, C661
  - fatigue-resistant,  $^{31}\text{P}$ -NMR spectroscopy, C258

- skeletal, clenbuterol alterations, E726
- skinned

  - contractile recovery (frog), C107
  - length dependency of calcium sensitivity, caffeine effects, C491
  - sarcoplasmic reticulum of, calcium release, C459
  - skinned smooth, sources of calcium, G808

Muscular dystrophy, norepinephrine turnover, brown fat (hamster), R960

Musculature, esophageal, bolus viscosity and, G8

Myelin, tubular, type II cells and lamellar body composition, C614

Myeloperoxidase

- endotoxemia, neutrophil activation and, H1017
- ischemia-reperfusion injury, H702

Myenteric plexus, cholinergic neurotransmission, somatostatin modulation of, G201

Myocardium

- arteriolar density, embolization and, microspheres, H636
- collateral conductance, nitroglycerin effects, awake state, H751
- contractility, chronic endotoxemia and (swine), H324
- contraction during ischemia, H894

end-systolic pressure-volume relations and, H664

dysfunction, chronic diabetes, triiodothyronine effects, H265

edema, blood histamine levels and, H912

epinephrine release, during left stellate ganglion stimulation, R659

function, bacterial shock and, H558

global hypoxia, coronary vasodilation, adenosine deaminase effects (guinea pig), H1004

glucose uptake, insulin-stimulated, adenosine effects, H970

infarction: *see* Infarction

metabolites, spatial heterogeneity, H344

relaxation, asynchrony effects, rest and exercise, awake state, H817

serotonin extraction, H570

skinned, pressure overload in, H517

stunned, postischemic dysfunction, H102

Myocytes: *see also* Heart cells

- cardiac

  - contractile properties, H59
  - dihydropyridine receptors, H140
  - inotropy and gap junctional conductance, H1206

- ventricular

  - sodium currents, scorpion toxin effects, H443
  - tetrodotoxin and lidocaine effects on action potentials, H1157

Myoelectric activity, jejunum, changes during exercise, G741

Myoglobin, intracellular oxygen tension, working gracilis muscle, H1179

Myometrium, growth and protein turnover, mechanical stretch effects, E543

Myosin

- phosphorylation

  - pancreatic acini, G130
  - smooth muscle, model, C99

- transitions, developing soleus muscle fibers, C605
- vascular smooth muscle cell, seeding density and time effects, C235

## N

Naloxone

- hemodynamic response to, adrenal medulla role in, R559
- respiratory failure, awake state, H72

Natriuresis

- ANF, during head-out immersion, R235
- ANP

  - amiloride interactions, kidney tubules, F521
  - papillary collecting duct, F477
  - regulation, sodium pump inhibitor, brain, F912

- chronic atrial appendectomy effects, awake state (monkey), R699
- circulating atrial natriuretic polypeptide and, F540
- elevated renal interstitial hydrostatic pressure, prostaglandin blockade, F507
- immunoreactive atrial natriuretic factor, model (sheep), R567
- increased plasma cGMP, after  $\alpha$ -human atrial natriuretic peptide, G814
- lysophospholipids, F824
- pressure

  - CNS lesions and, R84

## SUBJECT INDEX TO VOLUME 254

Natriuresis (continued)  
 renal, sodium and aldosterone effects, F697  
 response to acute arterial hypertension, F601  
 renin-induced, F432  
 volume expansion, pentobarbital effects (monkey), R727

Necrosis, myocardial, dobutamine effects, H855

Neonate: *see also* Infant; Newborn  
 biphasic response to glucose, pancreas, E167  
 bone proton flux, during acidosis, F306  
 hyperoxia, bronchiolar epithelium and, R755  
 intestinal circulation, autoregulation of (swine), G189  
 prostaglandins, gastric mucosal response to hydrogen and, G142

Neovascularization, vasa vasorum regression, H126

Nephrectomy, progressive glomerular infarction after, F856

Nephritis, Heymann, hydroxyl radical role in, F337

Nephron  
 juxamedullary, ANP microvascular actions, F440  
 long-loop descending limb, permeability properties along, F323  
 loss, autoregulation of renal blood flow, F284  
 remnant, glomerular hemodynamic adaptations, F425

Nephropathy  
 diabetic, streptozotocin diabetes mellitus, E749  
 experimental membranous, angiotensin II and, F500  
 potassium-depletion, kidney epithelial cells (monkey), F747

Nephrosis  
 albumin gene transcription, liver, E676  
 protein synthesis, liver, C634

Nephrotic syndrome  
 ANF effects, kidney function, F211  
 renal function, edema-forming states, R1017

Nephrotoxicity  
 aminoglycoside, kidney epithelial cell line, C251  
 gentamicin, acute renal hypoperfusion and, F574

Neural regulation  
 alkali secretion, duodenum, G162  
 renal function, edema-forming states, R1017

Neuraminidase, erythrocytes treated with, sequestration of, H1167

Neuroendocrine-gonadal axis, LH, FSH, and testosterone sampling, men, E658

Neurohormonal regulation, renal function, during development (sheep), F771

Neurohumoral interactions, dehydration, awake state, R338

Neuromuscular control, defecation, G100

Neurons, myenteric, electrical behavior, distal colon (guinea pig), G522

Neuropeptides, gastric somatostatin release, glucose effects, E756

Neuropeptide Y  
 blood pressure and, posterior hypothalamic nucleus, H879

insulin release and, E513

Neurosecretory cells, vasopressin secretion, supraoptic nucleus, R711

Neurotransmission  
 adrenergic, cerebral blood flow, hypotension, newborn (pig), H671  
 cholinergic  
 corpus cavernosum, H459, H468  
 somatostatin effects, antral muscle, G201  
 excitatory, intrapulmonary artery, H1142

Neurotransmitters  
 ion transport, intestinal, diabetes and, G444  
 lacrimal gland secretion and, G300  
 molecular events in synaptogenesis, C345  
 precursors, intestinal absorption, aging effects, G630

Neutrophils  
 activation, endotoxemia and, H1017  
 exocytosis and calcium signals in, hyperosmotic inhibition, C709  
 phagosomal membranes of, assessment of sodium-hydrogen exchange activity, C272  
 resting and activated, lithium movements, C526  
 sodium-calcium exchange, C150  
 vascular injury, skeletal muscle, H823

Newborn: *see also* Infant; Neonate  
 $\alpha$ -adrenoceptor responses, renal vascular bed (sheep), 277  
 fasted, substrate level and turnover rate in, E137  
 growth hormone, disappearance from plasma (sheep), E318  
 heart, different ATP-catabolism, H1091  
 left atrial hypertension, lung lymph flow, hypoxia effects (lamb), H487  
 pial arteries, histamine dilation (pig), H1023  
 venous pressure response, intestinal vascular responses (piglet), G658

Nicotinic acid, plasma glucose levels and, diabetes, E23

Nifedipine,  $\alpha$ -H-labeled, binding to intact vascular smooth muscle cells (pig), C45

Nisoldipine, aldosterone response and, angiotensin II (sheep), E566

Nitrendipine  
 GH<sub>3</sub> cells, E328  
 increased vascular response to, Dahl S kidney, F533

Nitrofurothiazole, metabolism and excretion, renal, F145

Nitrogen, metabolism, small intestine, G264

Nitroglycerin, collateral conductance and, myocardial, awake state, H751

5-Nitro-2-(3-propylamino)-benzoic acid, anion secretion and, epididymal epithelium, F121

Nitroprusside, adenosine deaminase and, coronary functional hyperemia, H417

NMN: *see* N'-Methylnicotinamide

Nomenclature, kidney, F1

Noradrenergic nerve  
 central, norepinephrine release, hypertension, H993  
 noncholinergic, transmission, corpus cavernosum, H459

Norepinephrine  
 aortic smooth muscle stimulation, myoplasmic calcium-force relations, H840  
 blockade, infection, glucose kinetics and, E16

blood flow changes and, renal, F470  
 brown adipocyte proliferation, C175  
 cardiopulmonary baroreflex and, R320  
 cardiovascular and endocrine systems and, fetus (sheep), H734

coronary functional hyperemia induced by, adenosine deaminase effects, H417

exercise and, hypoxia effects, R197

extra-adrenal secretion, after bilateral adrenalectomy, E52

feeding, clonidine effects, R90

free response, critical illness, E287

glucose uptake, during exercise, skeletal muscle, E555

hypoglycemia and, exercise, E713

impaired sympathetic vasoconstriction and, experimental heart failure, H727

infusion, autoregulatory escape (piglet), G560

kinetics  
 abnormalities in, congestive heart failure, E760  
 sodium-restricted diet, model, E222  
 oxygen consumption and, cold-exposed skeletal muscle, E482

plasma  
 during bacteremia, awake state, R470  
 removal, rest and exercise, R663

postsynaptic adrenoceptor-mediated vasoconstriction, H984

release  
 endothelium inhibition of, adrenergic nerves of carotid artery, H871  
 heart, during left stellate ganglion stimulation, R659

paraventricular hypothalamic nucleus, hypertension, H993

perfused intestine, H1187

renal venous, renin response to sodium depletion and, awake state, F754

response, hypertension, H230

thermogenesis induced by, aging and, R457

treatment, aorta, calcium-dependent sodium influx during, C75

turnover  
 control, brown fat (hamster), R960  
 food and light effects, R821  
 uptake, jejunum, angiotensin II effects, G135

venous resistance and, hepatic, H452

Nuclear magnetic resonance  
 intracellular compartmentalization of potassium, F401

intracellular pH, smooth muscle, C213

net volume regulatory uptake, sodium content, erythrocytes, C466

phosphorous, metabolism in skeletal muscle, C417

phosphorus 31  
 graded hypoxia and hyperoxia, brain (gerbil), C699

isolated perfused pancreas, G575

muscle respiration, linear model, C548

stimulated skeletal muscle, C258

## SUBJECT INDEX TO VOLUME 254

phosphorus-31, thyrotropin-releasing hormone, brain injury, R785  
proton, ethanol effects, G57  
5'-Nucleotidase, ATP-inhibited, kidney, F191  
Nucleotides, cell levels, modulation of, kidney tubules, F311  
Nystatin, potassium ion conductance and, basolateral membrane, bladder (toad), C816

### O

Obesity  
  dietary, refeeding hypertension and, R47  
  glucose utilization, white adipose tissue, E342  
hypophysectomy effects, energy balance and brown fat activity, E162  
hypothalamic, morphology of adipose tissue, R740  
postprandial hyperinsulinemia of, role of GIP in, E767  
ventromedial hypothalamic lesions, plasma hormones and, R917  
Octanoate, triiodothyronine effects, myocardial dysfunction, chronic diabetes, H265  
1,25-(OH)<sub>2</sub>D: *see* Vitamin D  
1,25-(OH)<sub>2</sub>D<sub>3</sub>: *see* Vitamin D<sub>3</sub>  
Oligosaccharides, starch and glucose, amylase activity at acid pH, G775  
Omeprazole  
  gastric acid secretory capacity and, parietal cell, G33  
  hydrogen-potassium-ATPase and gastric, G856  
  parietal cells, G399  
Opercular epithelium, atriopeptin II effects (killifish), R27  
κ-Opiate agonists, CNS blockade by, acoustic stress-induced gastric motor inhibition, G802  
Opioids, endogenous, respiratory failure, awake state, H72  
Ornithine, activity, wounds, E459  
Ornithine decarboxylase  
  amiloride inhibition of, DNA synthesis and, G408  
  distribution, intestinal adaptation and, G194  
Osmolarity, cytosol composition, relaxed skeletal muscle (frog), C591  
Osmolytes, organic, renal medullary cells, C788  
Osmoregulation  
  drinking effects, before and after gestation, F588  
  prolactin and pseudopregnancy effects, R478  
  slow changes in aldose reductase, rapid changes in sorbitol flux and, C788  
  vasopressin and, normal menstrual cycle, R641  
Osteocalcin, circulating, corticosterone and, R828  
Osteoporosis, steroid, corticosterone and, R828  
Ouabain  
  aldosterone production and, glomerulosa cells, C744  
  bicarbonate secretion, measurement of, colonic, C383  
  binding capacity, muscle cells, C1

membrane potential gradient and, proximal colon, C475  
neurogenic vasoactive properties of, H148  
norepinephrine stimulation of oxygen consumption, cold-exposed skeletal muscle, E482  
rubidium absorption, aldosterone and carbon dioxide partial pressure effects, colon, G898  
sodium-potassium pumping activity resistant to, C847  
treatment, atrioventricular conduction in, H313  
Ovariectomy, estradiol replacement and, LH subunit mRNA during LH surge, E99  
Overload, calcium, during reoxygenation, heart cells, embryo (chick), H1133  
Oxidation  
  carbohydrate  
    fructose effects, insulin-resistant state, E201 Aging  
    whole-body and muscle, insulin response, E231  
  fructose-induced thermogenesis, insulin resistance and, E201  
Oxidative metabolism, fetal, substrate uptake during hypoxia (lamb), E572  
Oxygen  
  base-line extraction influences, cerebral blood flow response to hematocrit, H156  
  consumption  
    aging and, cardiac performance, H599  
    blood flow role in, G281  
    chronic renal failure, F267  
    low coronary perfusion and, heart, H292  
    minimal, optimal contractility and, heart, R933  
    myocardial, adenosine deaminase effects (guinea pig), H1004  
    myocardial, adenosine deaminase effects, H417  
    myocardial, power matching, H279  
    norepinephrine effects, cold-exposed skeletal muscle, E482  
    parietal cells, G399  
    proximal tubules, F407  
    thermogenesis and aging, R457  
  extraction, lactate production in endotoxic shock, E45  
  gradual reintroduction, gastric ischemia and, G366  
  limited supply, CCK-8 and, pancreas, C727  
  modulation, single-vessel hydraulic conductance, H317  
  pressure  
    individual fibers, working gracilis muscle, H1179  
    tissue, sympathetic escape in skeletal muscle, H929  
  pulmonary vascular response to, fetus (lamb), H532  
  recovery and, bronchiolar epithelium response, R755  
  tension, urachus contractile activity, fetal (sheep), F25  
  transport  
    cerebral blood flow, fetus and newborn (lamb), H52  
    fluorocarbon-for-blood exchange and, H719  
hemodilution effects, striated muscle (hamster), H331  
placental, different hemoglobin types (sheep), R585  
uptake  
  developing and postnatal intestinal circulation (swine), G189  
  intestinal, autoregulatory escape from norepinephrine infusion, G560  
  scaled creatine kinase model, R949  
vascular wall, sympathetic escape in skeletal muscle, H929  
Oxygenation, intestinal, vascular response, developmental (piglet), G658  
Oxygen gradient, transcapillary, working gracilis muscle, H1179  
Oxygen metabolites, reactive, role in Heymann nephritis, F337  
Oxygen radicals  
  gastric ischemia and, G366  
  importance, *E. coli* endotoxemia, H954  
  injury of chief cells, glutathione modulation of, G49  
  vascular injury, skeletal muscle, H823  
Oxyhemoglobin dissociation curve, placental oxygen transport (sheep), R585  
Oxyntic gland, amiloride effects, gastrointestinal growth, G408  
Oxypressin, smooth muscle response to, verapamil blockade, R75  
Oxytocin  
  activation of potassium ion conductance, basolateral membrane, bladder (toad), C816  
  structural analogues, central and peripheral receptors, E31  
Oxytocin analogue, smooth muscle response to, verapamil blockade, R75

### P

Pacemaker, cardiac, temperature and adrenergic stimulation effects, R840  
Pacing  
  atrial  
    ANP release and, R607  
    asynchrony effects, rest and exercise, awake state, H817  
    integration of heart rate and sympathetic neural effects, H651  
PAF: *see* Platelet-activating factor  
Pancreas  
  bicarbonate response, extrinsic nerves and, G436  
  biphasic response to glucose, fetal and neonatal, E167  
  denervation, postprandial thermogenesis and, E625  
  diabetes, amylase secretion during feeding, G878  
  ducts, pH regulatory mechanisms, cells, G925  
  exocrine  
    ANF and, E301  
    development, thyroxine effects, G315  
    secretion, cephalic phase response, awake state, G424  
  glucagon and insulin secretion, adrenergic modulation of (sheep), 518  
  insulin release, episodic, E384  
  isolated perfused, phosphorus nuclear magnetic resonance, G575  
  limited oxygen supply in, optical absorbance changes induced by CCK-8, C727

## SUBJECT INDEX TO VOLUME 254

**Pancreas (continued)**

- secretion, phase II antral motility, inter-digestive cycle, G249
- secretion and circulation, leukotriene effects, G849
- vascular conductance, VIP effects, E435
- weight, CCK-8 continuous infusion effects, R17
- zymogen granules, chloride transport, secretagogue and, G93

**Pancreatic acini**

- amylase secretion, visualization of, G664
- bombesin action, substance P agonist effects (guinea pig), G883
- CCK binding and internalization (pig), G513
- cells, ultrastructural autoradiographic localization, E301
- gastrin and CCK, sodium-hydrogen exchange and, G25
- myosin phosphorylation, G130
- permeabilized, kinetics of calcium sequestration, C621
- protein kinase C downregulation (guinea pig), G242
- structure-activity relations, CCK analogues, G176
- VIP-stimulated amylase release, somatostatin inhibition of (guinea pig), G217

**Pancreatic cells**

- $\beta$ , biphasic response to glucose, fetal and neonatal, E167
- ductal, pH regulatory mechanisms, G925

**Pancreatic enzymes, CCK-pancreozymin release and, response to fat, G837**

**Pancreatic islets**

- insulin release, glucagon and secretin effects, E454
- perfused, phosphoinositide metabolism, E609

**Papaverine, albumin equilibration, skin and lymph, hindpaw, H89**

**Parabrachial nucleus, dorsal, hyperglycemia induced by electrical stimulation, E468**

**Paracelluar pathway, complications, proximal tubules, F297**

**Paralysis, vasomotor, CNS in renal nerve activity, R761**

**Paranitrophenyl phosphatase, ethanol effects, parietal cell membrane, G57**

**Parasympathetic-sympathetic interaction, atrioventricular conduction, ouabain treatment and, H313**

**Parathyroidectomy, calcium transport changes and, brain synaptosomes, F837**

**Parathyroid hormone**

- adenylate cyclase and, proximal tubules, C304
- calcifediol and, water and phosphate absorption with, para recta, F45
- calcium absorption and, renal thick ascending limbs, F62
- calcium effects and, phosphate transport, kidney epithelium (opossum), F217
- calcium transport changes and, brain synaptosomes, F837
- 25-hydroxyvitamin D metabolism and, copper effects, E150
- metabolism, liver and kidney, E740
- potassium tolerance and, extrarenal, F385

**secretion, phorbol myristate acetate effects, E63**

**secretory protein I and, opposite effects of 1,25(OH)D<sub>3</sub>, E279**

**Paraventricular nucleus**

- contribution, afferent renal nerve presor response, R531
- electrical stimulation of, plasma renin activity and, R325
- metabolic alterations in, hypertension, R508
- norepinephrine release from, hypertension and, H993
- subfornical organ efferents, activation of septal neurons, R544

**Parietal cells**

- calcium metabolism, C498
- function
  - after hydrogen-potassium-ATPase blockade, G399
  - gastric acid secretion and, G33
  - membrane, ethanol effects, G57
- Parotid gland, diabetes, amylase secretion during feeding, G878
- Parotid vesicles, chloride-bicarbonate exchange in, C391

**Pars recta**

- proximal tubule, L-proline transport by luminal membrane vesicles, F628
- water and phosphate absorption, calcifediol and PTH, F45

**Patent ductus arteriosus, indomethacin and, renal function with, preterm (lamb), F38**

**PDA: see Patent ductus arteriosus**

**PDGF: see Platelet-derived growth factor**

**PEEP: see Pressure, positive end-expiratory**

**Pelvic floor, muscles, rectal distension effects, G100**

**Penile nerve, neural activity, electrophysiological study, R989**

**Penis, erection, cholinergic neurotransmission role in, H459, H468**

**Pentobarbital, natriuretic response and, volume expansion (monkey), R727**

**Pentobarbital sodium, blood flow measurement, microsphere estimates, G274**

**Pepsin, secretion, basal and stimulated, somatostatin effects (cod), G183**

**Pepsinogen**

- secretion, dispersed chief cells from stomach (guinea pig), G151
- stimulation, gastric acid secretion, parietal cell, G33

**Peptide histidine isoleucine, vascular conductance, endocrine and exocrine glands, E435**

**Peptides: see also Polypeptides**

- atrial
  - low-dose infusions, hemodynamic and renal effects, awake state, R161
  - physiology and pathophysiology, E1
  - atrial natriuretic: see Atrial natriuretic peptides
- brain, enhanced fever after castration, R513
- calcitonin gene-related, receptors for, gastric smooth muscle cells (guinea pig), G789
- CCK-related, sodium-hydrogen exchange and, acini (guinea pig), G25
- chemotactic, hyperosmotic inhibition, neutrophils, C709

**cholecystokinin-related, dispersed chief cells from stomach (guinea pig), G151**

**endogenous opioid, hemodynamic response to, adrenal medulla role in, R559**

**gastric inhibitory, vascular conductance, endocrine and exocrine glands, E435**

**gastrin synthesis and, G87**

**satiety action of, gastric and nongastric mechanisms, R628**

**stimulation, lacrimal gland secretion, G300**

**vasoactive intestinal**

- gastric somatostatin release, glucose effects, E756
- H-8 effects on ion transport, C115
- somatostatin inhibition of, pancreatic acini (guinea pig), G217
- vascular conductance in endocrine and exocrine glands, E435

**Peptide YY**

- insulin release and, E513
- primary culture of cells, colon, G829

**Peripheral hormone, responses, triiodothyronine administration, E733**

**Peristalsis**

- esophageal, bolus viscosity and, G8
- retrograde, CCK-8 and vomiting comparison, G254

**Permeability**

- bicarbonate, flow dependence, proximal convoluted tubules, F851
- calcium, perineurium of sciatic nerve (frog), C141
- capillary
  - isogravimetric, ischemia-reperfusion injury, H702
  - perfluorochemical perfusion, albumin effects, H1105
  - skin and lymph, hindpaw, H89
- capillary membranes, renal, F364
- coronary vascular, pathological blood histamine level effects, H912
- intestinal, luminal stirring, physiological measurement, G843
- osmotic water, interstitial composition and, F813
- potassium, proximal convoluted tubule, F105
- potassium ion, quinine effects, G795
- properties, descending limb of long-loop nephron, F323
- pulmonary vascular, protein, platelet role in (sheep), H763
- single capillary, protein size effects (frog), H304

**tight junction interactions, cytoskeletal, G416**

**water, regulatory volume decrease, lymphocytes, C286**

**pH**

- acid, amylase activity, oligosaccharides and, G775
- ammonium absorption and, distal colon, F657
- analysis, scaled creatine kinase model, R949
- calcium effects, Henle's loop, F232
- cell
  - amiloride and gastrointestinal growth, G408
  - luminal chloride effects, proximal tubules, F677

## SUBJECT INDEX TO VOLUME 254

cytosolic, receptor-mediated endocytosis and, C829  
gradient, acid-base effects, renal cortex, F863  
intracellular  
angiotensin II and, vascular smooth muscle, C751  
angiotensin II and vasopressin effects, glomerular mesangial cells, F787  
bicarbonate transport, acid-secreting epithelium (locust), R348  
epithelial cells, distal colon, G502  
lithium-hydrogen exchange, neutrophils, C526  
skeletal muscle, <sup>31</sup>P-NMR, C417  
smooth muscle, C213  
intracellular calcium and, serotonin effects, enterocytes (chicken), G891  
intracellular chloride concentration, microelectrometric titration measurement, C200  
mitochondria, temperature effects, red muscle (carp), R611  
regulation, neutrophil phagosomes, C272  
regulatory mechanisms, pancreatic ductal cells, G925  
Phagosomal membranes, neutrophils, assessment of sodium-hydrogen exchange activity, C272  
Phenamil, inhibition, Friend murine erythroleukemic cell differentiation, C122  
Phentolamine  
norepinephrine release and, intestine, H1187  
peptide YY inhibition and, insulin release, E513  
Phenylephrine  
autoregulation, vascular resistance and, hypertension, H709  
blood flow and, finger, H889  
cardiac function and, H494  
Phenylisopropyladenosine, plasma glucose levels and, diabetes, E23  
*N*<sup>6</sup>-Phenylisopropyladenosine, handling, interstitia of cremaster muscle, H369  
8-Phenyltheophylline, ethanol-induced blood flow increase and, portal, G495  
Phorbol, vascular effects, aorta, R436  
Phorbol esters  
adenylate cyclase activity and, collecting tubular cells (toad), C183  
anion secretion and, epididymal epithelium, F121  
brown adipocytes, E323  
inhibition of transport, proximal convoluted tubule, F9  
parathyroid hormone secretion and, E633  
tumor-promoting, angiogenesis and (chick), C318  
Phorbol myristate acetate  
dioctanoylglycerol and, inhibition of transport, proximal convoluted tubule, F9  
parathyroid hormone secretion and, E633  
Phosphatase  
intestinal epithelial cell maturation, G355  
sodium-potassium-chloride cotransport and, giant axon (squid), C582  
Phosphate  
absorption, pars recta, calcifiedol and PTH action in, F45  
inorganic  
metabolism, skeletal muscle, C417  
modulation of sodium-potassium-ATPase, hepatic and ileal, G761  
inositol, PAF and PDGF effects, mesangial cells, F87  
restriction, chronic renal failure, F267  
transport  
calcium effects, kidney epithelium (opossum), F217  
renal brush-border membranes, kinetic model, F329  
Phosphocreatine  
metabolism, skeletal muscle, C417  
monoexponential changes, muscle respiration model, C548  
Phosphodiesterase, activity, after hormone treatment of hepatocytes, E449  
Phosphoinositide, metabolism, perfused islets, E609  
Phospholipase A<sub>2</sub>, activity, PAF and PDGF effects, mesangial cells, F87  
Phospholipase C, inositol phosphate and acid secretion, parietal cell, G622  
Phospholipids  
biliary, Triton WR-1339-induced changes, G346  
cardiac function and, H494  
parietal cell membrane, ethanol effects, G57  
peroxidation, skeletal muscle, H578  
Phosphorylation  
cross-bridge, smooth muscle, model, C99  
hormone treatment and, hepatocytes, E449  
oxidative, hypoxia and hyperoxia, brain (gerbil), C699  
parathyroid hormone secretion and, E63  
Physiological mechanisms, diagramming, R717  
Pial arterioles, sciatic nerve stimulation effects, H133  
Pial artery  
histamine dilation, through prostanoid production, newborn (pig), H1023  
pressure *see* Pressure  
Piezoelectric crystals, measurement, septal-lateral dimensions of left ventricle, H801  
Pirenzepine, inositol phosphate and acid secretion, parietal cell, G622  
Pituitary cells  
AT-20, calcium currents and protein kinase C, C206  
calcium channels in, E328  
GH secretion, extracellular sodium effects, E476  
Pituitary gland  
LH subunit mRNAs, during LH surge, E99  
responsiveness  
GnRH-induced puberty, men, E652  
growth hormone-releasing factor, E358  
Pituitary hormone, responses, triiodothyronine administration, E733  
Placenta: *see also* Fetus; Pregnancy  
calcium-binding protein, 1,25(OH)<sub>2</sub>D<sub>3</sub> and, fetus, E505  
folate uptake (guinea pig), C735  
microvillus membrane, neutral amino acid transport systems, C773  
oxygen transport, different hemoglobin types and (sheep), R585  
vasoconstriction and thromboxane release, bradykinin-induced, E681  
Plasma  
clearance: *see* Clearance  
concentration, ANF actions and, awake state (sheep), H811  
constituents: *see* specific constituent osmolality, vasopressin and thirst, normal menstrual cycle, R641  
Plasmalemma, microtubule reorganization and, estrogen effects, E775  
Plasmapheresis, sodium retention, hypoproteinemia and, edema, F887  
Plasminogen activator, fibrinolytic system, endothelial cells (human, bovine), R885  
Platelet-activating factor  
cytosolic calcium and phospholipase activity, mesangial cells, F87  
glucose kinetics and, E193  
role in primary hemostasis, H1218  
Platelet-derived growth factor, cytosolic calcium and phospholipase activity, mesangial cells, F87  
Platelets, protein permeability and, pulmonary vascular (sheep), H763  
Pneumocytes, type II, alterations after partial pneumonectomy, C684  
Pneumonectomy, partial, alterations in type II pneumocytes, C684  
<sup>31</sup>P-NMR: *see* Nuclear magnetic resonance, phosphorus-31  
Polyamines  
distribution, intestinal adaptation, G194  
uptake, enterocytes, G81  
Polydipsia, streptozotocin diabetes mellitus, E749  
Polyoxyethylene, ion transport mediated by, C20  
Polyoxypropylene, ion transport mediated by, C20  
Polypeptides: *see also* Peptides  
gastric inhibitory, postprandial hyperinsulinemia of obesity, E767  
pancreatic  
β-adrenergic-stimulated insulin release and, E513  
GABA effects, G723  
phase II antral motility of interdigestive cycle, G249  
Polyphagia, streptozotocin diabetes mellitus, E749  
Polyuria, lithium-induced, prostaglandin, cAMP, and vasopressin involvement, R863  
Polyvinyl alcohol, sponges, wounds, arginine metabolism, E459  
Portal vein  
catheter, gastric glucose load and, unrestrained rats, E407  
ligation, somatostatin effects, G322  
Posture, upright, norepinephrine kinetics, sodium-restricted diet, model, E222  
Potassium  
absorption, aldosterone and carbon dioxide partial pressure effects, colon, G898  
adaptation  
intracellular compartmentalization, F401  
renal memory after, F845  
ANP effects and, papillary collecting duct, F477  
cell swelling induced by, gallbladder epithelium, C643  
concentration, aldosterone secretion and, E243

Potassium (continued)

- conductance
  - $\beta$ -adrenergic effects, smooth muscle cells, C423
  - after action potential bursts, vagal C fibers, R443
  - basolateral, osmotically induced, colon (turtle), C165
  - depletion, cerebral blood flow in, H250
  - diluting segment, amphibian kidney, F615
  - efflux, copolymer blockade of, C20
  - excretion
    - homeostatic, feeding and fasting (sheep), R357
    - homeostatic regulation, model (sheep), R381
  - feeding effects, renin-angiotensin-aldosterone system (horse), R524
  - hyperkalemia, renin release and renal hemodynamics, F704
  - influx, erythrocytes, C243
  - intracellular activity, retinal pigment epithelium (bullfrog), C84
  - permeability, angiotensin II and, adrenal glomerulosa cells, E144
  - plasma renin and plasma aldosterone dissociation, dietary glycine hydrochloride effects, E187
  - spontaneous vasomotion, cerebral artery, genetic hypertension, H28
  - tolerance, extrarenal, parathyroid hormone effects, F385
  - transport, paracellular pathways, proximal tubule, model, F297
  - treatment, aorta, calcium-dependent sodium influx during, C75
- Potassium channels
  - atrial,  $\alpha$ -subunit activation (chick, rat, guinea pig), H1200, H124
  - basolateral membrane, single-channel analysis of, proximal convoluted tubule, F105
  - calcium ion inhibition, atrial, C397
  - lymphocytes, regulatory volume decrease, C286
  - noise, lidocaine-induced, colon (turtle), C165
- Potassium chloride, depolarization, myoplasmic calcium-force relations, H840
- Potassium current, delayed rectifier, heart ventricle, embryonic (chick), H192
- Potassium ions
  - conductance, activation by oxytocin and cAMP, urinary bladder (toad), C816
  - gastric mucosal permeability, prostaglandin effects, G378
  - gastric mucosal response to, prostaglandins and, G142
  - transport, renal cells, electrode sandwich technique (frog), F608
- Potential difference, ion transport, cAMP-binding protein and, rectum, cystic fibrosis effects, C719
- Potentials
  - action
    - bursts, potassium conductance after, vagal C fibers, R443
    - tetrodotoxin and lidocaine effects, ventricular myocytes, H1157
    - evoked, cerebral, endorectal stimulation and, G477
    - junction, intrinsic innervation, esophagus (opossum), G107
  - membrane
    - $\beta$ -adrenergic effects, smooth muscle cells, C423
    - epithelial cells, distal colon, G502
    - medullary chromaffin cells, C675
    - neurotransmission, pulmonary artery, H1142
    - resting, diaphragm muscle (hamster), C365
    - sodium pump role in, proximal colon, C475
    - oxidative, developing muscle fibers, C661
    - phosphorylation, scaled creatine kinase model, R949
    - transmembrane, hepatocyte, quinine effects, G795
  - Prazosin, blood flow and, finger, H889
  - Pregnancy: *see also* Fetus; Placenta
    - ANP vascular binding sites, vasorelaxation and, H1027
    - diabetes and low calcium-phosphorus diet effects, bone mineral metabolism, fetal, E496
    - during and after, drinking effects on vasopressin release, F588
    - eicosanoid production during, renal, E687
    - prolactin and, osmoregulation, R478
    - protein turnover, uterus, E549
    - renal vasodilatory capacity, amino acid infusion effects, F650
    - renin and blood volume, atrial peptide interrelations, R793
    - vasopressin, osmoregulation of thirst and, R641
  - Preoptic nucleus, median, vasopressin-mediated bradycardia and, H1172
  - Pressor response, afferent renal nerve, paraventricular nucleus and, R531
  - Pressure: *see also* Blood pressure
    - aortic, reduction, blood flow and, left ventricle, H361
    - arterial
      - afferent renal nerve pressor response and, R531
      - area postrema and, H963
      - central control, rostral medulla, H686
      - chemoreceptor-baroreceptor reflex interaction, anesthesia, R1
      - control with electronic negative feedback device, H187
      - drinking and response to angiotensin II, R69
      - heart rate relations, alteration during immersion, awake state, R595
      - neuropeptide Y injections and, posterior hypothalamic nucleus, H879
      - norepinephrine effects, fetus (sheep), H734
      - paraventricular nucleus, hypertension and, R508
      - atrial
        - atrial peptide infusion effects, R161
        - release of atrial natriuretic peptide and, R607
      - capillary
        - high-intensity exercise training and, hindquarters, H274
        - isogravimetric, ischemia-reperfusion injury, H702
        - isogravimetric, leukocyte depletion, muscle ischemia, H823
        - microvascular control, pressure increases and (bat), H772
    - collateral waterfall, ventricular preload and, fetus (lamb), H532
    - constant perfusion, myocardial, adenosine deaminase effects (guinea pig), H1004
    - insufflation, capsaicin and bronchoconstriction, R845
    - intrapleural, physical model of intrathoracic stomach, G168
    - lymphatic, lymph propulsion and, G389
    - mean circulatory filling
      - acetylcholine measurement, H115
      - thyroid state effects, H81
    - natriuresis, renal, sodium and aldosterone effects, F697
    - overload changes
      - cardiac skinned-fiber mechanics, species differences, H517
      - reversal, right ventricular hypertrophy after, H1099
    - pial artery, hemodynamic significance of carotid rete (goat), R770
    - portal
      - hepatic venous resistance and, H452
      - somatostatin effects, G322
    - portal venous, intestinal capillary filtration, G339
    - positive end-expiratory ventilation, end-systolic pressure-volume relations during, H664
    - pulsatile, posthemorrhage hypotension, H1074
    - renal interstitial hydrostatic natriuresis of, prostaglandin blockade, F507
      - sodium excretion and, F527
      - stop-flow, prostaglandins and tubuloglomerular feedback, F642
    - ultrafiltration, glomerular actions of dopamine, F196
    - venous
      - hepatic, lymphatic function after, G748
      - intestinal vascular response (piglet), G658
      - ventricular, determination, H622
    - Pressure-diameter relations, end-systolic, chronic endotoxemia and (swine), H324
    - Pressure-flow relations, autoregulation, vascular resistance and, hypertension, H709
    - Pressure-volume relations
      - end-systolic
        - left ventricular, identifiability, H1113
        - ventilation with PEEP, H664
      - left ventricular work, ischemic heart, H894
      - minimal oxygen consumption, constant external work of heart, R933
      - negative work, oxygen-saving effects, left ventricle, H34
      - oxygen consumption, low coronary perfusion, H292
      - total vascular, measurement with acetylcholine, H115
    - Probenecid, NMN transport and, renal brush-border membrane vesicles, F56
    - Progabide, GABA and, gastric acid secretion, G723
    - Proglumide
      - GI responses, CCK-8 and vomiting comparison, G254

## SUBJECT INDEX TO VOLUME 254

secretion, dispersed chief cells from stomach (guinea pig), G151  
 Prohormone, receptor-mediated release, ANF secretion and, R809  
**Prolactin**  
 pseudopregnancy and, osmoregulation in, R478  
 receptors: *see* Receptors  
**L-Proline**, transport, luminal membrane vesicles, pars recta, proximal tubule, F628  
**Prolyl 4-hydroxylase**, denervation and immobilization effects, skeletal muscle and tendon, R897  
**Propranolol**  
 low coronary perfusion and, oxygen consumption in, H292  
 peptide YY inhibition and, insulin release, E513  
**Prostacyclin**  
 angiotensin II-stimulated production, renal afferent arterioles, F734  
 HETEs and, synthesis, coronary arterial endothelial cells, C8  
**Prostaglandins**  
 angiotensin II and, control of blood flow, vasa recta, F417  
 angiotensin II-stimulated production, renal afferent arterioles, F734  
 blockade: *see* Blockade  
 blood flow changes and, renal, F470  
 brain, enhanced fever after castration, R513  
 experimental fever induced by, pattern differences, R633  
 gastric mucosal damage, ethanol-induced, G117  
 gastric mucosal response to hydrogen and, G378  
 glomerular hyperfiltration, protein-induced, F463  
 interaction, glomerular sites for, kidney, F184  
 mediators, tubuloglomerular feedback, F642  
 neonatal and maternal, gastric mucosal response to hydrogen, G142  
 nonhypotensive endotoxemia and, awake state, H509  
 production  
     arachidonic acid and, brain endothelium, C37  
     histamine dilation of pial arteries, newborn (pig), H1023  
     pulmonary hypertension and, H500  
     renal failure, converting enzyme inhibition in sodium depletion, F358  
     renal hemodynamics, sex differences in, F223  
 renal microvascular, F291  
     acute renal failure, F684  
 secretion and circulation, pancreatic, G849  
 synthesis  
     coronary arterial endothelial cells, C8  
     mucosal, reduced after small bowel resection, G373  
 synthesis inhibitors, jejunal capillary exchange capacity, G695  
**Prostaglandin E<sub>2</sub>**  
 genesis of pyrogen fever and, R463  
 hyperfiltration and, diabetes, F202  
 inhibition of adenylate cyclase, proximal tubule, C304  
 involvement, lithium-induced polyuria, R863  
 synthesis, inhibition, inositol phospholipid metabolism, C554  
**Prostaglandin I<sub>2</sub>**, baroreflex control, renal nerve, R424  
**Prostanoids**  
 converting enzyme inhibition, renal failure induced by, F358  
 production, histamine dilation of pial arteries, newborn (pig), H1023  
 renal microvascular, acute renal failure, F684  
 vascular control, newborn (pig), H671  
**Protein**  
 absorption, flow rate and perfused load effects, proximal tubules, F802  
 albumin binding and, microvascular endothelium, H425  
 breakdown, compartmentation of leucine, R688  
 calcium-binding, 1,25(OH)<sub>2</sub>D<sub>3</sub> and, fetus, E505  
**cAMP-binding**, cystic fibrosis and, rectum, C719  
**C-reactive**, after central interleukin 1 and  $\alpha$ -melanocyte-stimulating hormone, aging and, R401  
 excretion, ANF effects, nephrotic syndrome, F211  
 gastric mucosal response to, prostaglandins and, G142  
 high, sucrase-isomaltase degradation, jejunuloileum, G907  
 lipids and, utilization in fasting (penguin), R61  
 loading, glomerular hyperfiltration, prostaglandins in, F463  
 lymph-to-plasma ratio, kinase II, H1042  
 metabolism, insulin metabolism differences, renal, E419  
 oxidation, membrane-bound sodium-potassium-ATPase activity, kidney (pig), C330  
 phosphorylation  
     calcium and cAMP-induced, lacrimal gland, G543  
     medullary collecting tubules, F512  
**plasma**  
 concentration, norepinephrine effects, fetus (sheep), H734  
 intestinal loss, ethanol-induced, 5-lipoxygenase products and, G483  
 saline infusion and, fetus (sheep), R1007  
 steroid hormone transport and, uterus, E79  
 pulmonary vascular permeability to, platelet role in (sheep), H763  
 secretion, lacrimal gland, peptides and, G300  
 size effects, permeability and (frog), H304  
 skeletal muscle, leucine incorporation, E208  
 synthesis  
     glucagon and leucine metabolism, meals and (pig), E372  
     hepatic, cytokine regulation, G450  
     nephrosis and, liver, C634  
     synthesis inhibitors, water flow and, vasopressin-stimulated urinary bladder (toad), F139  
 transport, interstitial fluid volume and, model, H384  
 turnover  
     gravid and nongravid uterus, pregnancy, E549  
     mechanical stretch effects, uterus, E543  
 uncoupling  
     brown fat, fasting and refeeding effects, R11  
     brown fat mitochondria (hamster), R1035  
 vascular smooth muscle cell, seeding density and time effects, C235  
**Proteinases**, pancreatic, diet effects, jejunuloileum, G907  
**Protein kinase**  
 basolateral membrane, lacrimal gland, G543  
**cAMP-<sub>i</sub>**, ion transport and, cystic fibrosis, C719  
 cyclic nucleotide-dependent, inhibition by H-8 (flounder), C115  
 phosphodiesterase activity and, hepatocytes, E449  
**Protein kinase C**  
 angiogenesis (chick), C318  
 brown adipocytes, E323  
 calcium currents and, GH<sub>3</sub> cells, C206  
 downregulation, pancreatic acini (guinea pig), G242  
 histamine release, fundic mast cells, G40  
 parathyroid hormone secretion and, E63  
**Proteinuria**  
 experimental membranous nephropathy, angiotensin II and, F500  
 glomerular injury, after renal infarction, F856  
 hydroxyl radical and, F337  
 postexercise, glomerular/tubular, F277  
**Proteolysis**, insulin effects on, fasting, E700  
**Proton**, flux, bone, during acidosis, neonate, F306  
**Pseudopregnancy**, prolactin and, osmoregulation in, R478  
**PTH**: *see* Parathyroid hormone  
**Puberty**  
 food restriction, LH and, female, R616  
 GnRH-induced, pituitary and gonadal responsiveness, men, E652  
**Pulmonary artery**  
 catheterization, improved techniques for monitoring, H181  
 endothelial cells  
     high-pressure pulsation (lamb), C338  
     serotonin transport, hyperoxia effects (pig), C781  
 excitatory neurotransmission, nonadrenergic and noncholinergic, H1142  
 severe pressure overload, right ventricular hypertrophy after reversal, H1099  
**Pulmonic stenosis**, AVP and angiotensin, cardiovascular effects, H438  
**Pump**  
 calcium, ATP-dependent, brain synaptosomes, F837  
 hydrogen ion  
     medullary collecting duct cells, F391  
     neutrophil phagosomes, C272  
 proton  
     ATPase, kidney medulla, F71  
     type II cells and lamellar body composition, C614

## SUBJECT INDEX TO VOLUME 254

Pump (*continued*)  
 sodium  
 aldosterone actions, cortical collecting duct, F689  
 inhibitor, ANP regulation, brain, F912  
 membrane potential gradient and, proximal colon, C475  
 thyroid hormone regulation, kidney, C323  
 sodium-potassium action potential bursts, vagal C fibers, R443  
 cAMP-induced stimulation (bullfrog), C84  
 electrode sandwich technique (frog), F608  
 humoral inhibitor of, hypertension, H230  
 muscle cells, C1

Purines  
 cell nucleotide levels and, kidney tubules, F311  
 release, adult and newborn hearts, H1091

Purinoceptors: *see* Receptors

Puromycin, water flow and, urinary bladder (toad), F139

Puromycin aminonucleoside  
 nephrosis induced by, albumin gene transcription and, liver, E676  
 nephrotic syndrome induced by, ANF effects, nephrotic syndrome, F211

Putrescine, uptake, enterocytes, G81

Pyloric sphincter, motility: *see* Motility

Pyrogen  
 endogenous, experimental fever induced by, pattern differences, R633  
 enhanced fever, following castration, R513

Pyrogenicity, interferon, R499

Pyrrolizidine alkaloid, pulmonary injury and, H258

Pyruvate  
 lactate and, isotopic equilibration, E532  
 spermatogenic cell metabolism of, gossypol effects, C571

PYV cells, primary culture, colon, G829

**Q**

Quin 2, angiotensin II effects and, calcium in glomerular mesangial cells, F254

Quin 2-acetoxymethyl ester, response to ADH or cAMP, collecting tubules, F240

Quinidine, sodium-calcium exchange and, sarcolemmaal vesicles, C441

Quinine, hepatocyte transmembrane potential, amino acid transport and, G795

**R**

R59022, adenylate cyclase activity and, collecting tubular cells (toad), C183

Radioimmunoassay, PTH metabolism, liver and kidney, E740

Radioligands, binding,  $\beta$ -adrenergic receptors, skeletal muscle, E795

Receptors  
 acetylcholine, molecular events in synaptogenesis, C345  
 adrenoceptor  
 calcium channel blocker interaction, ileum, G586  
 cardiac, epinephrine-induced renin secretion and, E265

cardiac responsiveness, dietary fish oil, H494  
 effects mediated by, H199

$\alpha$ -adrenoceptor  
 norepinephrine release, intestine, H1187  
 renal arterioles, F178

$\beta$ -adrenoceptor  
 cardiac, acidosis effects (chick), H20  
 individual vessels in tenuissimus muscle, H631  
 percutaneous needle biopsy, skeletal muscle, E795  
 refeeding hypertension, dietary obesity, R47  
 responses, renal vascular bed (sheep), R277  
 thyroxine and, fasting, R33

$\alpha$  and  $\beta$ -adrenoceptor  
 cold-exposed skeletal muscle, E482  
 modulation of glucagon and insulin secretion, pancreas (sheep), R518

ANF, glomerular regulation, sodium and water metabolism changes, F51

ANP  
 plasma, F159  
 vascular binding sites, pregnancy, H1027

atrial, ANF, stretch-induced reduction, R284

baroreceptor  
 activation, septal neuron response to, R331  
 arterial, operant and classical conditions, R1025

cardiopulmonary, awake state (monkey), H693

carotid, ANF attenuation, R590

carotid sinus, neurogenic vasoactive properties, H148

head-out water immersion and, awake state, R595

bombesin, substance P agonist effects (guinea pig), G883

calcitonin, gastric smooth muscle cells (guinea pig), G789

cardiac, stimulation, renal nerve and cardiovascular responses, R192

cardiopulmonary, chronic sodium depletion and, H905

CCK  
 gallbladder, G294  
 high-affinity binding, pancreatic acini (pig), G513  
 sodium-hydrogen exchange and, acini (guinea pig), G25

central and peripheral, OT analogues, E31

chemoreceptor  
 carotid, interaction, anesthesia and, R1  
 peripheral, pituitary blood flow and, H742

cholinergic, calcium regulation, parietal cell, C130

dihydropyridine  
 cardiac sodium channels, H140  
 vascular smooth muscles (pig), C45

dopamine, glomerular filtration rate and, F196

EGF  
 autophosphorylation of, insulin-deficient diabetes, E429

intestinal microvillus membranes, G429

GABA, depressor neuron effects, rostral medulla, H686

glomerular angiotensin, intrarenal renin-angiotensin system and, F345

G protein, direct gating of ion channels, H401

IGF, gastrointestinal epithelium, G457

insulin  
 endocytosis, adipocytes, E365  
 metabolism by kidney cells (opossum), E601  
 recycling defect, adipocytes, E39

intestinal, lactoferrin binding to brush-border membrane (monkey), G580

leukotriene D<sub>4</sub>, specificity of FPL 57231 for, pulmonary circulation, fetus (sheep), H120

LH/hCG, gonadotropin action and, testes, E708

mechanoreceptor, renal, spinoreticular cell responses to, R268

motilin, gastric smooth muscle cells, G210

muscarinic  
 acid secretion and inositol phosphates, parietal cell, G622  
 atrial,  $\alpha$ -subunit activation of potassium channels (chick, rat, guinea pig), I224, H1200  
 development, gastric smooth muscle, G680  
 membrane potentials, medullary chromaffin cells, C675

opiate agonists, ileocecal sphincter, G224

platelet-activating factor antagonist, primary hemostasis and, H1218

prolactin, purified, kidney (toad), C372

purinoreceptor, neurotransmission, pulmonary artery, H1142

stretch, esophageal peristalsis, G8

vasopressin, downregulation, kidney tubules, C404

venous, hypotension and (monkey), R857

ventricular  
 prostaglandin I<sub>2</sub> and cardiac reflex, R424  
 vasopressin release and, hemorrhage, R204

Rectal mucosa, ion transport, cAMP-binding protein and, cystic fibrosis, C719

Rectum  
 distension, sphincter ani externus and levator ani muscles with, G100

endorectal stimulation, cerebral evoked potentials and, G477

Red blood cells: *see* Erythrocytes

Reflexes  
 baroreflex  
 area postrema and, H963  
 blood pressure monitoring, H377  
 cardiopulmonary, neurohormones and, R320  
 carotid, ANF attenuation, R590  
 compensation for posthemorrhage hypertension, H1074  
 interaction, anesthesia and, R1  
 left ventricular distension and, changes in venous outflow, R212  
 modulation by cardiopulmonary receptors, during sodium depletion, H805

neurohumoral interactions in dehydration, R338

operant avoidance or classical aversive conditioning, R1025

prostaglandin I<sub>2</sub> effects, heart, R424  
solitary nucleus, H756  
vasopressin-mediated bradycardia, H1172  
cardiopulmonary  
  awake state (monkey), H693  
  osmotically released vasopressin effects, R815  
cardiovascular  
  after hypoperfusion, awake state, H976  
  intestinal afferents and, H354  
  vasopressin release and, hemorrhage, R204  
opharyngeal-neuroendocrine, drinking effects, before and after gestation, F588  
renal, spinoreticular cell responses to, R268  
Renal concentrating effect, plasma AVP and, chloride depletion metabolic alklosis and, F15  
Renal nerve activity  
  CNS in, prolonged hemorrhagic shock, R761  
  sodium depletion and, awake state, F754  
  afferent, pressor response, paraventricular nucleus and, R531  
  electrical stimulation of paraventricular nucleus, R325  
  kidney function and, edema-forming states, R1017  
  neurohormonal regulation, during development, fetus (sheep), F771  
  prostaglandin interactions, F184  
  response, cardiac receptor stimulation, R192  
  sodium excretion and, uninephrectomy, F32  
Renin  
  ACTH and aldosterone, acute hypercapnia and hypoxia, awake state, R431  
  blood volume and ANP relations, pregnancy, R793  
  distribution, intrarenal, during ACE inhibition, F900  
  gene expression, maturing kidney, F582  
  heterogeneity, F432  
  inhibition, atrial natriuretic factor, R1011  
  nonhypotensive endotoxemia and, awake state, H509  
  norepinephrine effects, fetus (sheep), H734  
  plasma activity  
    cardiovascular and hormonal response, H947  
    dietary glycine hydrochloride effects, E187  
  electrical stimulation of paraventricular nucleus, R325  
  renal pressure-natriuresis, F697  
  water drinking, exercise training effects, R417  
release  
  during hemorrhage, R204  
  during hyperkalemia, F704  
response to sodium depletion, norepinephrine response and, awake state, F754  
sodium excretion and, CNS lesions, R84  
Renin-angiotensin-aldosterone system  
  feeding effects (horse), R524  
  hypotensive hemorrhage, renal and endocrine adaptation to, R56  
Renin-angiotensin system  
  cardiopulmonary baroreflex and, R320  
  cardiovascular effects, pulmonic stenosis, H438  
  dehydration, leg vasodilation and (boar), H11  
  drinking and, arterial pressure effects, R69  
  electrical stimulation of paraventricular nucleus, R325  
  hormonal determinants, experimental heart failure, R776  
  inhibition, atrial natriuretic factor, R1011  
  intrarenal  
    gene expression, maturing kidney, F582  
    gene expression during ACE inhibition, F900  
    modulation of glomerular angiotensin receptors, F345  
  renal function, during development, fetus (sheep), F771  
  renin substrate release and, E389  
Renin substrate, release, renin-angiotensin system and, E389  
Renin substrate-stimulating factor, renin-angiotensin system, liver slices, E389  
Resistance  
   $\beta$ -adrenergic control, individual vessels in tenuissimus muscle, H631  
  afterload, end-systolic pressure-thickness relations, H658  
  airway, capsaicin challenge, R845  
  arterial, ventricle-load optimization, H1051  
  collateral, risk area size and location, heart, H473  
  hepatic venous, portal pressure and, H452  
  insulin, chronic uremia, E394  
  internal, end-systolic pressure-volume relations, H1113  
  intravascular and extravascular, coronary collaterals, ventricular preload effects, H532  
  lymphatic, after venous pressure elevation, hepatic, G748  
  pulmonary vascular  
    FPL 57231 and, fetus (sheep), H120  
    hypoxia effects, newborns with left atrial hypertension (lamb), H487  
    renal, during hyperkalemia, F704  
  renal vascular, amino acid infusion effects, pregnancy, F650  
  total peripheral, head-out water immersion and, awake state, R595  
vascular  
  distribution in arteriolar networks of sartorius muscle, H1149  
  ethanol-induced blood flow increase and, portal, G495  
  humoral inotropic factor, hypertension, H230  
  intermittent hypoxia effects, embryo (chick), H1194  
  neurogenic control, H148  
  sex differences in renal hemodynamics, F223  
  sodium restriction effects, diabetes, F668  
  vasoconstriction and, hypertension, H709  
Resistance arteries, vasomotion, genetic hypertension, H28  
Respiration  
  muscle, linear model, C548  
  positive pressure, end-systolic pressure-volume relations and, H664  
Respiratory control, inspiratory activity, during development (opossum), R578  
Respiratory neurons, medullary, development (opossum), R578  
Respiratory tract, intercellular communication, ciliated cells, C63  
Retinal pigment epithelium, sodium-potassium pump, cAMP-induced stimulation (bullfrog), C84  
Rheology, wall shear rate, arterioles, H1059  
Rhythm  
  circadian  
    during head-out immersion, R235  
    renin-angiotensin-aldosterone system (horse), R524  
  circannual, membrane transitions, heart (squirrel), E378  
  phase-locked, heart cell aggregates (chick), H1  
Ribonucleic acid  
  messenger  
    albumin, nephrotic liver, E676  
    intrinsic factor, developmental regulation of, G913  
    sodium-potassium-ATPase  $\alpha$ - and  $\beta$ -subunit, thyroid hormone regulation of, kidney, C323  
  nephrosis, protein synthesis and, liver, C634  
  protein turnover and, gravid and non-gravid uterus, E549  
  stretch-induced growth, uterus, E543  
  subunit messenger, LH surge, E99  
RNA: *see* Ribonucleic acid  
RU 28362, action, ion transport, colon, F153  
RU 486, metallothionein and, basal and stress conditions, E71  
Rubidium  
  absorption, aldosterone and carbon dioxide partial pressure effects, colon, G898  
  flux, angiotensin II and, adrenal glomerulosa cells, E144  
Ryanodine, coupling calcium and, single ventricular cell, H937

## S

Salicylate: *see also* Aspirin  
  transport, proximal tubules, F554  
Saline  
  hypertonic, infusion, thirst and vasopressin in menstrual cycle, R641  
  intravascular, thoracic duct lymph flow response, fetus (sheep), R1007  
Saliva, amylase activity at acid pH, oligosaccharides and, G775  
Salivary gland  
  fluid secretion and energy supply, high dose of acetylcholine, G781  
  vascular conductance, VIP effects, E435  
Saralasin  
  control of blood flow, vasa recta, F417  
  sodium restriction and, hyperfiltration of diabetes, F668

## SUBJECT INDEX TO VOLUME 254

Sarcolemma, calcium, single ventricular cell, H937

Sarcolemmal vesicles  
insulin action, glucose transport, skeletal muscle, E633  
superior mesenteric artery, sodium-calcium exchange, C441

Sarcomere, length and joint kinematics, torque production, hindlimb (frog), C759

Sarcoplasmic reticulum  
coupling calcium, single ventricular cell, H937  
skinned muscle fibers, calcium ion release from, C459

Sartorius muscle, terminal arteriolar networks, distribution of vascular resistance, H1149

Satiety: *see also* Feeding  
CCK action, gastric and nongastric mechanisms, R628  
CCK-8 effects, food intake, R17  
CNS and, insulin release, pancreatic, E384  
sucrose intake, CCK effects, chronic decrebation, R853

Saturation kinetics, apparent, sodium influx, freshwater hyperregulators (frog), R984

Sciatic nerve  
perineurium of, calcium diffusion through (frog), C141  
stimulation effects, pial arterioles, H133

Sclerosis, glomerular, after renal infarction, F856

Scopolamine, muscarinic receptors, gastric smooth muscle, G680

Scorpion venom, sodium currents and, heart, H443

Secretagogues  
chloride transport pathways and, pancreatic zymogen granules, G93  
gastric acid secretion stimulated by, somatostatin effects (toad), G531  
PYY cells, colon, G829  
stimulation, regulation of calcium during, parietal cell, C130

Secretin  
amylase release and, pancreatic acini, G664  
bicarbonate response and, pancreas, G436  
chloride permeability and, pancreatic zymogen granules, G93  
insulin release and, E454  
secretion and circulation, pancreatic, G849  
vascular conductance, endocrine and exocrine glands, E435

Secretory cell, chloride channel, colon, C505

Secretory granules, bronchiolar epithelium, hyperoxia and, neonate, R755

Secretory protein I, PTH compared with, opposite effects of 1,25(OH)D<sub>2</sub>D<sub>3</sub>, E279

Secretory rate, gastric hydrogen-potassium-ATPase and, G856

Sepia  
bacterial  
adrenergic blockade in, glucose kinetics and, E16  
myocardial function and, H558  
immunoreactive atrial natriuretic factor, model (sheep), R567

vascular effects of cyclic GMP, aorta, R436

Septal neurons, activation of, subfornical organ and cardiovascular influences, R544

Septic shock: *see* Shock

Septum, neurons, activation of baro- and chemoreceptors, R331

Serine, absorption and metabolism, jejunum, G264

Serotonin  
exchange, myocardial, H570  
membrane and fluidity, hyperoxia effects, plasma membrane vesicles (pig), C781  
norepinephrine uptake and, jejunum, G135  
sodium-hydrogen exchange and intracellular calcium, enterocytes (chicken), G891

*Trichinella* infection and, jejunal longitudinal muscle, G124

vasoconstriction, during reflex sympathetic response to cooling, fingers, H889

Sex differences  
fasting effects, myocardial substrates, C560

GnRH-LH-estradiol axis, food restriction and, female, R616  
renal hemodynamics, F223

Sex hormones, protein turnover and, uterus, pregnancy, E549

Shock  
bacterial, myocardial function and, H558  
endotoxic  
left ventricular function and (swine), H324  
regional lactate production in, E45  
hemorrhagic, CNS role in renal nerve activity, R761

septic  
improved techniques for monitoring, H181  
insulin-stimulated sugar transport, skeletal muscle, R673  
plasma catecholamines in, awake state, R470

Single-cell mechanism, hydraulic manipulator, C577

Sinoaortic denervation  
striatal dopamine release in, microdissection, R396

water deprivation, blood pressure in, vasopressin blockade effects, awake state, E490

Sinoaortic node, frequency, temperature and adrenergic stimulation effects, R840

Sinoatrial valve, activation, right atrium (chicken), H584

Sinus, spontaneous rhythm, asynchrony effects, rest and exercise, awake state, H817

SITS: *see* 4-Acetamido-4'-isothiocyanostilbene-2,2'-disulfonic acid

Skin  
extracellular chloride, changes, intracellular chloride activity and, skin (frog), F95  
glucose utilization, obesity and, E342  
hindpaw, equilibration of albumin in, H89

microcirculation: *see* Microcirculation  
sodium influx, freshwater hyperregulators (frog), R984

Sleep, paradoxical, cardiovascular changes and, computer analysis, H217

Sleep-wake cycle, cardiovascular changes during, computer analysis, H217

Sodium  
absorption, serotonin effects, enterocytes (chicken), G891  
balance  
atrial peptides and, E1  
hypoproteinemia and, edema, F887  
urinary excretion of immunoreactive kinins and, F484

concentration, aldosterone secretion and, E243

consumption, static exercise effects, H592

content  
erythrocytes, net volume regulatory uptake measured by NMR, C466  
kidney epithelial cells (monkey), F747

contraluminal transport system, organic anion secretion, proximal tubules, F453

depletion  
converting enzyme inhibition, renal failure induced by, F358  
modulation by cardiopulmonary receptors, H905

renal venous norepinephrine during, awake state, F754

diet restriction, norepinephrine kinetics, model, E222

diluting segment, amphibian kidney, F615

excretion  
ANF effects, nephrotic syndrome, F211  
atrial natriuretic factor and, angiotensin II, R453

atrial peptide infusion effects, R161  
chronic atrial appendectomy effects, awake state (monkey), R699

CNS lesions and, R34

hormonal determinants of, experimental heart failure, R776

renal interstitial hydrostatic pressure effects, F527

renal interstitial pressure and, F507

renal nerves in, uninephrectomy, F32

extracellular, inhibition of replacement of GH secretion, pituitary cells, E476

feeding effects, renin-angiotensin-aldosterone system (horse), R524

D-glucose transport, renal basolateral membranes, F711

handling, renal tubular, ANP and amiloride interaction, F521

homeostasis, kinetics, R1001

influx  
apparent saturation kinetics, freshwater hyperregulators (frog), R948  
calcium-dependent, aorta, norepinephrine and high potassium treatment, C75  
copolymer blockade of, C20  
erythrocytes, C243

inhibition, atrial natriuretic factor, R1011

intake, renal pressure-natriuresis, F697

intracellular chloride concentration and, method of measurement, C200

load, circulating atrial natriuretic polypeptide and, F540

metabolism, changes, ANF receptor regulation during, F51

## SUBJECT INDEX TO VOLUME 254

potassium excretion and, feeding and fasting (sheep), R357  
 pump: *see* Pump  
 restriction, hyperfiltration of diabetes and, F668  
 retention, sodium, edema-forming states, R1017  
 transport  
 aldosterone metabolism, bladder (toad), F547  
 inhibition by amiloride, epithelial cells (frog), C297  
 tubular absorption, solute polarization during, cortical interstitium, F813  
 vasopressin-induced retention, mineralocorticoid hypertension, F739  
 Sodium-ammonium exchange, bicarbonate transport and, acid-secreting epithelium (locust), R348  
 Sodium-benzoate, hydroxyl radical and, Heymann nephritis, F337  
 Sodium-calcium exchange  
 aldosterone production and, glomerulosa cells, C744  
 human neutrophils, C150  
 isoproterenol and cAMP effects, MDCK cells, F374  
 sarcolemmal vesicles, superior mesenteric artery, C441  
 Sodium channels  
 cardiac, dihydropyridine receptors on, H140  
 epithelial, cAMP-induced activation, C802  
 membrane vesicles, cultured bladder cells (toad), C512  
 Sodium chloride  
 absorption, acid-base effects, ileum, G329  
 electroneutral transport, distal tubule (salamander), F80  
 osmoregulation, renal medullary cells, C788  
 pancreatic secretion, oral stimulation and, awake state, G424  
 Sodium currents, cardiac, scorpion toxin effects, H443  
 Sodium-cyanide, adenosine release and, aortic endothelial cells (pig), H223  
 Sodium hematocrit, renal response to ANP, F634  
 Sodium-hydrogen-chloride-bicarbonate exchange, evidence for, distal tubule (salamander), F80  
 Sodium-hydrogen exchange  
 activation  
 by angiotensin II, vascular smooth muscle, C751  
 gastrin and CCK, acini (guinea pig), G25  
 aldosterone production and, glomerulosa cells, C744  
 assessment of activity, phagosomal membranes of neutrophils, C272  
 epidermal growth factor effects, kidney cells, C267  
 gastrointestinal growth, amiloride and, G408  
 intracellular calcium and, serotonin effects, enterocytes (chicken), G891  
 intracellular pH, glomerular mesangial cells, F787  
 lithium movements and, resting and activated neutrophils, C526  
 NMR measurement, volume regulatory uptake, erythrocytes, C466

renal medullary collecting duct cells, F391  
 sarcolemmal vesicles, superior mesenteric artery, C441  
 ursodeoxycholic acid cholerisis and, G232  
 Sodium ions  
 absorption, secretory and absorptive airway epithelia, C535  
 gastric mucosal permeability, prostaglandin effects, G378  
 gastric mucosal response to, prostaglandins and, G142  
 permeability, descending limb of long-loop nephron, F323  
 uptake, colonic enterocyte membrane vesicles, C484  
 Sodium potassium  
 pumping activity, ouabain-resistant, amiloride-sensitive, C847  
 transport, quantitative determination, muscle cells, C1  
 Sodium-potassium-ATPase  
 absorption, aldosterone and carbon dioxide partial pressure effects, colon, G898  
 activity  
 estrogen effects, ileal basolateral membrane, G687  
 high-salt diet, kidney tubules, F795  
 aldosterone and amiloride effects, cortical collecting duct, F689  
 hepatic and ileal, modulation by bile salts, G761  
 membrane-bound activity, free radicals, ischemia and, kidney (pig), C330  
 mRNA levels, kidney, thyroid hormone regulation of, C323  
 potassium adaptation and, renal memory, F845  
 quantitative determination of, muscle cells, C1  
 substrate utilization, proximal tubules, NADH fluorescence, F407  
 Sodium-potassium-ATPase inhibitor, release, ANP regulation of, brain, F912  
 Sodium-potassium-chloride  
 chloride-bicarbonate exchange with, parotid acinar basolateral membranes, C391  
 cotransport  
 asymmetry of, erythrocytes, C243  
 vanadate and fluoride effects, giant axon (squid), C582  
 Soleus muscle  
 basal and insulin-stimulated sugar transport, endotoxemia and bacteremia, R673  
 developing, single fibers, myosin transitions in, C605  
 developing muscle fibers, oxidative potential in, C661  
 Solitary nucleus  
 $\alpha_1$  and  $\alpha_2$  receptors, electrophysiology, H756  
 excitation, supraoptic vasopressin cells, R711  
 Solutes, polarization, cortical interstitium, F813  
 Somatosensory cortex, sciatic nerve stimulation, pial arterioles, H133  
 Somatostatin  
 bombesin effects and, sphincter of Oddi, G361  
 CCK and, bile flow, glucagon role in, G364  
 cholinergic neurotransmission and, anal muscle, G201  
 extraction, hepatic, awake state, E214  
 GABA and, gastric acid secretion, G723  
 gastric acid secretion and (toad), G531  
 gastric release, VIP-induced, glucose effects, E756  
 gastric secretion and, basal and stimulated (cod), G183  
 inhibition of VIP-stimulated amylase release, pancreatic acini (guinea pig), G217  
 insulin release and, pancreas, fetal and neonatal, E167  
 secretion, antrum and fundus of stomach, G20  
 splanchnic hemodynamics and plasma glucagon, portal hypertension, G322  
 urinary acidification, glucagon effects, F762  
 Somatostatin cell, population, aging and, G538  
 Sorbitol, flux, rapid changes, osmoregulation by, C788  
 Sorbitol dehydrogenase, osmoregulation, renal medullary cells, C788  
 Spaceflight, weightlessness effects, bone growth, R78  
 Spantide, capsaicin action, bronchoconstriction, R845  
 Spatial heterogeneity, blood flow and metabolite content, heart, H344  
 Species differences  
 cardiac skinned-fiber mechanics, pressure overload changes, H517  
 sympathetic afferent stimulation, renal nerve and cardiovascular response, R192  
 Spectral analysis, heart rate variability (lizard), R242  
 Spectrometry, mass, isotopic equilibration, lactate and pyruvate, E532  
 Spectrophotometry, absorption, calcium absorption, renal thick ascending limbs, F62  
 Spermatogenic cells  
 energy metabolism, gossypol effects, C564  
 gossypol uncoupling, comparative study, C571  
 Sphincter ani externus muscle, rectal distension effects, G100  
 Sphincter of Oddi, bombesin, gastrin-releasing peptides and, G361  
 Spinoreticular cell, responses, renal venous and ureteral occlusion, R268  
 Spironolactone  
 aldosterone and, target tissue, colon, F153  
 aldosterone metabolism and, urinary bladder (toad), F547  
 potassium excretion and, feeding and fasting (sheep), R357  
 Spleen  
 neuraminidase-treated erythrocytes, sequestration of, H1167  
 sympathetic activity, spinally mediated inhibition, R655  
 Stannius corpuscles, hypocalcin from, calcium uptake and, gill (trout), R391  
 Starch, amylase protection, acid pH, G775  
 Starvation: *see* Fasting  
 Stellate ganglion, left, stimulation, epinephrine release, heart, R659

Stenosis, portal venous, intestinal capillary filtration, G339  
 Stereoisomers, dihydropyridine, cardiac sodium channels, H140  
 Steroid hormones, transport, uterus, E79  
 Steroidogenesis, adrenal, aldosterone secretion and, E243  
 Stomach: *see also* Gastric antrum and fundus, somatostatin secretion, G20  
 chief cells, functionally distinct receptors for CCK (guinea pig), G151  
 histamine release, fundic mucosal mast cells, G40  
 intrathoracic, physical model, G168  
 intrinsic factor mRNA, developmental regulation, G913  
 satiety action, CCK, R628  
 somatostatin release, VIP-induced, glucose effects, E756  
 sympathetic activity, spinally mediated inhibition, R655  
 Stress, acute and chronic, age effects on metabolic responses, E617  
 Structure-activity relations, CCK analogues, partial agonist activity, G176  
 Subformical organ neurons  
 plasma angiotensin II, hypernatremia and, R746  
 septal, activation of, cardiovascular influences, R544  
 Substance P, reflex bronchoconstriction, capsaicin challenge and, R845  
 Substance P antagonist  
 inhibition of bombesin (guinea pig), G883  
 release, cholinergic neurotransmission and, antral muscle, G201  
 Substrates  
 accumulation, acid-base effects, renal cortex, F863  
 exogenous, uptake during hypoxia, fetus (lamb), E572  
 flux, calculation of, E526  
 level, turnover rate relations, fasted adults and newborns, E137  
 metabolic, utilization by proximal tubule, F407  
 myocardial, fasting effects, sex differences, C560  
 renin, release, renin-angiotensin system and, E389  
 $\alpha$ -Subunit  
 activation, atrial potassium channels (chick, rat, guinea pig), H1200, H1224  
 ion channels, direct G protein gating, H401  
 Succinate dehydrogenase, oxidative potential, developing muscle fiber types, C661  
 Sucrase, intestinal epithelial cell maturation, G355  
 Sucrase-isomaltase, degradation, diet effects, jejunileum, G907  
 Sucrose  
 diffusion, perineurium of sciatic nerve (frog), C141  
 intake, CCK effects, chronic decerebration, R853  
 pancreatic secretion, oral stimulation and, awake state, G424  
 Sulfate, contraluminal transport system, organic anion secretion, proximal tubules, F453

Sulfobromophthalein, excretion, determination, R1043  
 Superoxide dismutase  
 importance, *E. coli* endotoxemia, H954  
 injury of chief cells, glutathione modulation of, G49  
 Superoxide radical  
 endotoxemia, neutrophil activation and, H1017  
 ischemia-reperfusion injury, H702  
 Suprachiasmatic nucleus, hyperglycemia, induced by electrical stimulation, E468  
 Supraoptic nucleus  
 cells, vasopressin secretion, R711  
 plasma angiotensin II, hypernatremia and, R746  
 Surfactant, type II cells, lamellar body and, composition, C614  
 Sweating, eccrine, intracellular calcium, C310  
 Sympathetic activity  
 abdominal and lumbar, spinally mediated inhibition, R655  
 bacteremia and, awake state, R470  
 Sympathetic nerve activity  
 CNS in, prolonged hemorrhagic shock, R761  
 diencephalic neurons, R257  
 prostaglandin I<sub>2</sub> and cardiac reflex, R424  
 renal, rostral GABA receptors and, H686  
 vasopressin-mediated bradycardia, H1172  
 discharge, diencephalic regions contributing to, R249  
 head-out water immersion and, awake state, R595  
 response to stimulation, arteriolar network of skeletal muscle, H919  
 stimulation, postsynaptic adrenoceptor-mediated vasoconstriction, H984  
 Sympathetic nervous system  
 clonidine effects, feeding, R90  
 dehydration, leg vasodilation and (baboon), H11  
 extra-adrenal epinephrine secretion, after bilateral adrenalectomy, E52  
 norepinephrine kinetics, sodium-restricted diet, model, E222  
 norepinephrine release and, intestine, H1187  
 norepinephrine turnover, brown fat (hamster), R960  
 outflow, cardiovascular system, GABA effects, awake state, R680  
 refeeding hypertension, dietary obesity and, R47  
 Sympathetic response, reflex, fingers, serotonergic vasoconstriction during, H849  
 Sympathetic tone, heart rate and, AV conduction, H651  
 Sympathochromaffin system  
 extra-adrenal epinephrine secretion, after bilateral adrenalectomy, E52  
 hypoglycemia, during exercise, E713  
 Sympathoinhibitory neurons, GABA receptors and, rostral medulla, H686  
 Synaptogenesis, molecular events in, C345  
 Synaptosomes, brain, calcium transport, PTH-mediated changes, F837  
 Systolic wall, thickening, afterload resistance effects, H658

T

Tachycardia  
 atrial rate and pressure, ANP release and, R607  
 baroreflex, ANP attenuation, R590  
 vagal baroreflex modulation, chronic sodium depletion, H905  
*Taenia coli*, sources of calcium, G808  
 Taurine  
 transport  
 intestinal, G334  
 intestinal, ontogenesis of, G870  
 Taurocholate  
 stimulation of efflux from hepatocytes, arginine vasopressin, G732  
 transport, hepatocytes, G269  
 Taurohydrocholic acid, uptake, hepatocytes, G269  
 Temperature  
 adrenergic stimulation and, sinoatrial frequency, R840  
 dependence, CCK binding, pancreatic acini (pig), G513  
 pH of mitochondria and, red muscle (carp), R611  
 surface, distribution, pinna, IR thermography, R389  
 Temperature, body  
 glucose kinetics, adrenergic blockade in infection and, E16  
 regulation, simultaneous measurement, R229  
 Tension-length loop, regional curvature radius, left ventricular wall, H1010  
 Tenuissimus muscle, individual vessels,  $\beta$ -adrenergic control, H631  
 Testes, gonadotropin action, dietary fat effects, E708  
 Testosterone  
 frequent sampling, neuroendocrine-gonadal axis, men, E658  
 GnRH effects, mating behavior in males, E84  
 pituitary-gonadal responsiveness, GnRH-induced puberty, men, E652  
 responsiveness, dietary fat effects, testes, E708  
 Testosterone-binding globulin, steroid hormones, transport, uterus, E79  
 12-O-Tetradecanoylphorbol-13-acetate, protein kinase C, amylase release and (guinea pig), G242  
 Tetraethylammonium, transport, kidney epithelial cell line, F351  
 Tetramethylammonium, cell volume measurement, C192  
 Tetrodotoxin, action potentials and, ventricular myocytes, H1157  
 Thalamus, medial, sympathetic nerve discharge and, R249  
 Thallium, scintigraphy, fMLP-induced coronary spasm, H481  
 Theophylline  
 blockade, blood flow autoregulation (swine), G156  
 cystic fibrosis, ion transport and cAMP-binding transport with, rectum, C719  
 interaction with verapamil and diltiazem, diaphragm muscle (hamster), C365  
 Thermal acclimation, overwintering strategy, membrane lipid composition and (crayfish), R870

## SUBJECT INDEX TO VOLUME 254

**Thermogenesis**  
 carbohydrate-induced, normalization by fructose in insulin-resistant state, E201  
 changes in acyl-CoA esters, brown fat (hamster), E181  
 cold- and norepinephrine-induced, aging effects, R457  
 cold-induced, following exercise training, R908  
 feeding and, clonidine effects, R90  
 hypophsectomy effects, obesity and, E162  
 insulin action, after acute exercise, E248  
 nonshivering  
     brown fat, fasting and refeeding, R11  
     lipoprotein lipase in brown fat, E155  
     protein, brown fat mitochondria (hamster), R1035  
 norepinephrine turnover, brown fat (hamster), R960  
 postprandial, insulin role in, E625  
 protein kinase C, brown adipocytes, E323  
**Thermogenin**, uncoupling protein, brown fat mitochondria (hamster), R1035  
**Thermography**, infrared, heat loss, pinna, R389  
**Thermoregulation**  
 brain (reindeer), R730  
 heat loss, pinna, R389  
 pyrogenicity, interferon and its inducer, R499  
**Thirst**: *see* Drinking  
 Thoracic duct, lymph flow response, saline infusion and, fetus (sheep), R1007  
**Threonine**, absorption and metabolism, jejunum, G264  
**Thrombocytopenia**, protein permeability, platelets and (sheep), H763  
**Thromboxane**  
 genesis of, prostaglandin E<sub>2</sub>, R463  
 mediators, tubuloglomerular feedback, F642  
 receptor-mediated responses, endotoxemia (sheep), R310  
 release, bradykinin-induced, placenta, E681  
 renal failure, converting enzyme inhibition in sodium depletion, F358  
 synthesis inhibitors, postprandial jejunal capillary exchange capacity, G695  
**Thymidine**  
 brown adipocyte proliferation, C175  
 incorporation, mature and immature colonocytes, G610  
**Thymidine kinase**, aging and, G538  
**Thyroid**  
 membrane transitions, hibernation (squirrel), E378  
 treatment, fasting and,  $\beta$ -adrenergic responsiveness in, R33  
 vascular conductance, VIP effects, E435  
**Thyroid hormone**  
 brown adipocytes, E323  
 changes, breeding fast (penguin), R170  
 ontogeny, tissue 5'-monodeiodinase activity, fetus (sheep), E337  
 sodium-potassium-ATPase mRNA levels and, kidney, C323  
**Thyroid state**, venous compliance, left ventricular performance and, H81  
**Thyroparathyroidectomy**  
 bone resorption, inhibition of, 25(OH)<sub>2</sub>D after, E260

urinary acidification, glucagon effects, F762  
**Thyrotropin**, hormone responses, Antarctic residence, E733  
**Thyrotropin-releasing hormone**  
 analogue, injection in dorsal vagal complex, gastric secretion and, G639  
 brain injury, <sup>31</sup>P-NMR, R785  
 hormone responses, Antarctic residence, E733  
**Thyroxine**  
 $\beta$ -adrenergic responsiveness, food deprivation and, R33  
 exocrine pancreatic development and, G315  
 glucose and glycogen metabolism and, embryonic intestine (chick), G65  
**Thyroxine 5'-deiodinase**, brown adipocytes, E323  
 Time course, tubule response, acute arterial hypertension, F601  
**T-lymphocytes**, interleukin 2-stimulated, volume response to hypotonicity, C286  
**T84** monolayers, tight junction interactions, cytoskeletal, G416  
**Toxin**, scorpion, cardiac sodium currents and, H443  
**Tracer studies**, free fatty acid metabolism, E562  
**Tracheal epithelium**, ion transport, fetal and adult, C691  
**Training**: *see* Exercise  
**Trichloromethiazide**, electrolyte transport and, distal tubule (salamander), F80  
**Triglyceride**, kinetics, ethanol and acetate effects, E175  
**Triiodothyronine**  
 $\beta$ -adrenergic responsiveness, food deprivation and, R33  
 brown adipocytes, E323  
 hormone responses, Antarctic residence, E733  
 myocardial dysfunction and, chronic diabetes, H265  
 norepinephrine turnover, brown fat (hamster), R960  
**Triton WR-1339**, changes, biliary lipid secretion, G346  
**Trypsin**, luminal activity, sucrase-isomaltase degradation, jejunoleum, G907  
**T84 tumor cells**, chloride channels, C505  
**Tubuloglomerular feedback**: *see* Feedback  
**Tumor necrosis factor**, regulation, feeding and hepatic protein synthesis, G450  
**Tyrosine kinase**, EGF receptors and, insulin-dependent diabetes, E429

**U**

**Ulcer**, ethanol-induced, leukotrienes and, G117  
**Uninephrectomy**, sodium excretion, renal nerves and, F32  
**Urachus**, contractile activity, fetal (sheep), F25  
**Uranyl nitrate**, renal microvascular, acute renal failure, F684  
**Urea**  
 permeability, descending limb of long-loop nephron, F323  
 synthesis, hepatic (pig), G602  
 transport, osmotic stability of red cells and, renal circulation, C669  
**Uremia**  
 chronic, insulin resistance, E394

PTH-mediated changes in calcium transport, brain synaptosomes, F837  
**Ureter**, occlusion, spinoreticular cell responses to, R268  
**Uric acid**, protein and lipid utilization, long-term fasting (penguin), R61  
**Urinary bladder**  
 aldosterone metabolism, time-dependent (toad), F547  
 basolateral membrane, activation of potassium ion conductance (toad), C816  
 cancer, renal metabolic/excretory coupling, F145  
 vasopressin-stimulated water flow, protein synthesis inhibitor effects (toad), F139  
**Urinary concentrating mechanism**, lectin gold labeling of glycoconjugates and, renal papilla, C450  
**Urinary excretion**, immunoreactive kinins, sodium balance effects, F484  
**Urinary tract**, toxicity, metabolic/excretory coupling, F145  
**Urine**  
 concentration, descending limb of long-loop nephron, F323  
 flow: *see* Flow  
**Urogenital tract**, contractile activity, hormonal control, fetal (sheep), F25  
**Ursodeoxycholic acid**, choleresis, sodium-hydrogen exchange and, G232  
**Uterus**  
 epithelium, acute response to estrogen, E775  
 gravid and nongravid, protein turnover, pregnancy, E549  
 growth and protein turnover, mechanical stretch effects, E543  
 oxytocin receptors in, E31  
 response to oxypressin, verapamil blockade, R75  
 steroid hormone transport, E79

V

**Vagal C fibers**, action potential bursts, slow potassium conductance after, R443  
**Vagotomy**  
 hepatic, metabolic responses after, R602  
 truncal, extrinsic nerves, pancreatic secretion and, G436  
**Vagus nerve**  
 action potential bursts, slow potassium conductance after, R443  
 capsaicin, reflex bronchoconstriction and, R845  
 dorsal complex, TRH analogue injection into, gastric secretion and, G639  
**Vanadate**, sodium-potassium-chloride transport and, giant axon (squid), C582  
**Vasa recta**, blood flow: *see* Blood flow  
**Vasa vasorum**, regrowth, blood flow through new microvessels, H126  
**Vascular adaptation**, intermittent hypoxia effects, embryo (chick), H119<sup>4</sup>  
**Vascular bed**, pressor and intestinal responses, vasopressin, after cholinergic blockade, H45  
**Vascular conductance**, VIP effects, endocrine and exocrine glands, E435  
**Vasoactive agents**, intracellular pH, glomerular mesangial cells, F787

## SUBJECT INDEX TO VOLUME 254

**Vasoconstriction**  
 bradykinin-induced, placenta, E681  
 coronary, fMLP effects, H481  
 hypoxic pulmonary  
     angiotensin II effects, H500  
     oxygen and, fetus (lamb), H532  
 peripheral sympathetic, experimental  
     heart failure effects, H727  
 postsynaptic adrenoceptor-mediated,  
     coronary and femoral vascular beds,  
     H984  
 reflex, neurohormones and, R320  
 serotonergic, reflex sympathetic response  
     to cooling, fingers, H889  
 vascular resistance and, hypertension,  
     H709

**Vasoconstrictors**  
 changes induced by, blood flow, kidney,  
     F470  
 leg vasodilation and, during heating and  
     dehydration (baboon), H11

**Vasodilation**  
 coronary  
     global myocardial hypoxia (guinea  
         pig), H1004  
     norepinephrine-induced, adenosine de-  
         aminase effects, H417  
     histamine, pial arteries, newborn (pig),  
         H1023  
 hyperkalemia, renin release and renal  
     hemodynamics, F704  
 leg, vasoconstrictor effects, during heat-  
     ing and dehydration (baboon), H11  
 terminal arteriolar networks, sartorius  
     muscle, H1149

**Vasomotion**  
 cerebral microcirculation, awake state,  
     H67  
 renal, cardiac atria role in, F562  
 spontaneous, cerebral artery, genetic hy-  
     pertension and, H28

**Vasopressin: see also Antidiuretic hormone**  
 analogue, smooth muscle response, R75  
 angiotensin II and  
     intracellular pH of glomerular mesan-  
         gial cells, F787  
     subfornical organ neurons, R746  
 antagonists of, antidiuretic activity, F165  
 hemorrhage, cardiovascular and hor-  
     monal response, H947  
 arginine  
     ACTH and cortisol secretion induced  
         by, fetus (sheep), R410  
     angiotensin and, cardiovascular ef-  
         fects, pulmonic stenosis, H438  
     chloride depletion metabolic alkalosis  
         and, F15  
     enhanced fever after castration, R513  
     hypoxia and hypercapnia, awake state,  
         R552  
     norepinephrine effects, fetus (sheep),  
         H734  
     protein phosphorylation, kidney tu-  
         bules, F512  
     pseudopregnancy and, osmoregulation,  
         R478  
     taurocholate and glycocholate efflux  
         from hepatocytes, G732  
 blockade: *see* Blockade  
 bradycardia mediated by, role of median  
     preoptic area, H1172  
 calcium and, action in collecting tubule,  
     F240  
 dehydration, leg vasodilation and (ba-  
     boon), H11

enhanced, sodium retention induced by,  
 hypertension, F739  
 growth-regulatory signals, kidney epithe-  
 lial cells (monkey), F747  
 involvement, lithium-induced polyuria,  
     R863  
 lectin gold labeling of glycoconjugates  
     and, renal papilla, C450  
 mitochondria-rich cells, medullary col-  
     lecting tubules, F907  
 neurohumoral interactions, dehydration,  
     R338  
 osmotically released, cardiopulmonary  
     reflexes and, R815  
 paraventricular nucleus contribution, af-  
     ferent renal nerve pressor response,  
     R531  
 pathophysiology of, E1  
 peripheral chemoreceptor control, pitui-  
     tary blood flow, H742  
 phorbol ester effects, collecting tubular  
     cells (toad), C183  
 receptors: *see* Receptors  
 release  
     drinking effects, before and after ges-  
         tation, F588  
     receptor-mediated, ANF secretion and,  
         R809  
     ventricular receptor stimulation of,  
         during hemorrhage, R204  
 secretion, supraoptic nucleus cells, R711  
 sodium channels, c-AMP-induced, C802  
 vacuoles induced by, cortical collecting  
     tubule, F719  
 vascular bed responses to, after cholin-  
     ergic blockade, H45  
 water flow stimulated by, protein syn-  
     thesis inhibitor effects, urinary blad-  
         der (toad), F139

**Vasoregulation**  
 intestinal, venous pressure elevation  
     (piglet), G658  
 pulmonary, after hypoperfusion, awake  
     state, H976  
 Vasoregulatory hormones, hyperfiltration  
     and, diabetes, F202  
 Vasorelaxation, vascular binding sites and,  
     ANP, pregnancy, H1027  
 Venous outflow, dynamic changes, barore-  
     flex and left ventricular distension,  
     R212

**Ventilation**  
 chemoreceptor-baroreceptor reflex inter-  
     action, anesthesia, R1  
 with PEEP, end-systolic pressure-vol-  
     ume relations and, H664

**Ventricles: *see* Cerebral ventricles; Heart**  
 ventricles

**Ventricular cells: *see also* Heart cells, my-  
 ocytes**  
 embryonic, cardiac gap junction channel  
     activity (chick), H170  
 isolated, contractile properties, H59  
 single, coupling calcium, H937

**Verapamil**  
 aldosterone response and, angiotensin  
     II (sheep), E566  
 angiotensin II effects and, calcium in  
     glomerular mesangial cells, F254  
 blockade: *see* Blockade  
 glucose response and, pancreas, fetal and  
     neonatal, E167  
 hemodynamic adaptations, remnant  
     nephrons, F425  
 hypermetabolism, chronic renal failure,  
     F267

interaction with diltiazem and theophyl-  
 line, diaphragm muscle (hamster),  
     C365  
 vasomotion, cerebral microcirculation,  
     awake state, H67

**Veratridine, cardiopulmonary reflex, circu-  
 lation, R815**

**Vitamin C, oxidized, intestinal transport  
 and metabolism, G824**

**Vitamin D**  
 1,25-dihydroxy, parathyroid hormone-in-  
     dependent regulation of, bone re-  
         sorption, E260  
 deficiency, embryo (quail), E639  
 25-hydroxy-, metabolism, copper and,  
     Wilson's disease, E150  
 PTH action and, water and phosphate  
     absorption, pars recta, F45

**Vitamin D<sub>2</sub>, 1,25-dihydroxy- and 24-epi-1,  
 25-dihydroxy-, biological activity,  
 E402**

**Vitamin D<sub>3</sub>**  
 1,25-dihydroxy-  
     analogues of, biological activity, E402  
     calcium-binding protein and, fetus,  
         E505  
 opposite effects, PTH and secretory pro-  
     tein I, E279

**Voltage, membrane, bile acid uptake, hepa-  
 tocytes, G269**

**Volume: *see also* Blood volume**  
 cell  
     extracellular electrodes for measure-  
         ment, C192  
     potassium and, gallbladder epithelium,  
         C643

**expansion**  
 chronic atrial appendectomy effects,  
     awake state (monkey), R699  
 increased ANF secretion after, heart  
     failure, R185

**natriuretic response to, pentobarbital**  
 effects (monkey), R727

**renal interstitial hydrostatic pressure**  
 effects, F527

**renal response, cardiac denervation**  
     and, F780

**interstitial, regulation, microvascular ex-  
 change and, model, H384**

**loading, fetal thoracic duct lymph flow**  
 response (sheep), R1007

**plasma**  
 during head-out immersion at night,  
     R235  
 $\alpha$ -hANP effects and, end-stage renal  
     failure, F895

**renal response to changes, cardiac**  
 atria role in, F562

**thermal dehydration and, R109**

**red blood cell, Fahraeus and Fahraeus-**  
 Lindqvist effects, H238

**regulation**  
 atrial natriuretic factor, R1011  
 hypotonicity, lymphocytes, C286

**replacement, microsphere estimates of**  
 blood flow, G274

**stroke**  
 end-systolic pressure-volume relations  
     and, H664  
 ventricle-load optimization, H1051

**ventricular**  
 determination, H622  
 measurement, H619

**Vomiting, CCK-8 and, comparison of gas-  
 trointestinal responses, G254**

## SUBJECT INDEX TO VOLUME 254

### W

#### Water

- absorption, pars recta, calcifediol and PTH action in, F45
- deprivation
  - blood pressure during, vasopressin blockade effects, awake state, E490
  - vasoconstrictor system effects on leg vasodilation (baboon), H11
- excretion, renal nerves in, uninephrectomy, F32
- head-out immersion, altered heart rate-arterial pressure relations, awake state, R595
- metabolism, changes, ANF receptor regulation during, F51
- permeability descending limb of long-loop nephron, F323
- secretion, lacrimal gland, peptides and, G300

- transport, paracellular pathways, proximal tubule, model, F297
- unstirred layer, physiological measurement, jejunum, G843
- Weaning, doubly labeled water method, R622

### Weight

- body, CCK-8 continuous infusion effects, R17
- intestinal, aging effects, G630
- Weightlessness, properties of growing bone and, R78
- Wilson's disease, 25-hydroxyvitamin D metabolism, copper effects, E150
- Work, negative, oxygen-saving effect, left ventricle, H34

### X

- Xanthine dehydrogenase
  - conversion to oxidase, ischemic intestine, G768

- conversion to xanthine oxidase, ischemic liver and kidney, G753

### Xanthine oxidase

- different ATP-catabolism, adult and newborn hearts, H1091
- ischemia
  - intestine, G768
  - liver and kidney, G753

### Y

#### Yohimbine

- blood flow and, finger, H889
- calcium channel blockers and, ileum, G586

### Z

- Zymogen granules, pancreatic, chloride transport, secretagogues and, G93

**Page — Issue Guide**  
**American Journal of Physiology**  
**Volume 254**

January	C1-C211	E1-E119	G1-G134	H1-H198	R1-R159	F1-F163
February	C213-C343	E121-E242	G135-G279	H199-H399	R161-R400	F165-F296
March	C345-C474	E243-E388	G281-G462	H401-H617	R401-R566	F297-F449
April	C475-C590	E389-E536	G463-G638	H619-H815	R567-R716	F451-F614
May	C591-C725	E537-E680	G639-G788	H817-H1022	R717-R852	F615-F769
June	C727-C862	E681-E810	G789-G940	H1023-H1234	R853-R1056	F771-F928

# Author Index to Volume 254

Aaronson, P. I., C75  
Abarzua, M., F311  
Abe, K., F521  
Abumrad, N. N., E588  
Achterberg, P. W., H1091  
Acker, M. A., C258  
Adachi, H., H1081  
Adair, T. H., H1194  
Adam, W. R., F401  
Adams, H. R., H954  
Adamski, S. W., H1042  
Adamson, R. H., H304  
Adibi, S. A., E588  
Adorante, J. S., C466  
Afring, R. P., E292  
Ahnem, D. J., G610  
Aibiki, M., R761  
Al-Bazzaz, F., C719  
Albert, M., H438  
Albina, J. E., E459  
Albisser, A. M., E237  
Alexander, E. A., F391  
Alexander, N., R396  
Alexander, R. W., C751  
Allen, J. C., C235, C441  
Allweis, C., R717  
Aloia, R. C., E378  
Alpers, D. H., G775, G913  
Altamirano, A. A., C582  
Althaus, J. S., H72  
Alvinerie, M., G802  
Amann, J., C235  
Ammons, W. S., R268  
Anast, C. S., E150  
Anatra, M. A., C243  
Anderson, A. C., H905  
Anderson, B. W., G843  
Anderson, R. H., H187  
Anderson, R. J., C183  
Anderson, S., R793  
Anderson, S. E., C466  
Andersson, C., G450  
Andresen, A. A., F634  
Andre, D., E454  
Angel, A., E667  
Angerson, W. J., G566  
Antwi, D., E720  
Aperia, A., F196, F795  
Aponte, G. W., G829  
Applegate, R. J., R815  
Arab, N., G74  
Arderiu, M. T., G322  
Arfors, K.-E., H631  
Armario, A., E71  
Armstead, W. M., H671, H1023  
Armstrong, M. L., H126  
Arnall, D. A., C560  
Arqvist, H. J., C411  
Aroyasami, J., R572  
Arts, T., H795, H1059  
Aridsson, D., G471  
Asada, I., G217  
Aasher, C., C512, C802  
Assan, R., F762  
Ast, M. B., F139  
Atchison, J. A., E749  
Atkinson, K. J., R834, R840  
Atkinson, T. P., C20  
Aubert, J. F., H509  
Aubert, M. L., C372  
Augee, M. L., E378  
Ausiello, D. A., F912  
Aversano, T., H658  
Awazu, S., G465  
Aynedjian, H. S., F202, F668  
Azadzoi, K., H459  
Baan, J., H1113  
Babij, P., C651, C657  
Bache, R. J., H984  
Bagby, G. J., E16, E193  
Bagnasco, S. M., C788  
Bailey, A. C., G513  
Baily, R., E760  
Baird, A. W., G307  
Baker, R., H120  
Baker, S. P., R33  
Balabani, R. S., F407  
Ball, K. T., E318  
Balla, I., C744  
Balla, T., C744  
Ballatori, N., G1, R801  
Ballermann, B. J., C411, R793, F159  
Bangsbo, J., R197  
Bank, N., F202, F668  
Bank, R. O., F210, F470  
Barabé, J., F484  
Barazanji, M., R727, R857  
Barbee, R. W., H265, R185  
Barberis, C., E31  
Barbul, A., E459  
Barenberg, D., G416  
Barge, R. M., E323  
Barkan, A. L., E99  
Barker, S., R424  
Barman, S. M., R249, R257  
Barnard, J. A., G334  
Barnard, R. J., E633  
Baron, D. A., G307  
Barra, J. G., H664  
Barrett, C., G1  
Barrett, J. D., E389  
Barrett, K. E., C53  
Barron, W. M., R478  
Bartha, K., R885  
Basset, D. R., H340  
Bassingthwaite, J. B., H570  
Bastie, M. J., G25  
Bauerfeind, P., G275  
Baum, M., F9, F677  
Baumer, J. W., E775  
Baylis, C., F223, F650  
Bazin, R., E342  
Bealer, S. L., R84  
Beasley, D. G., H671  
Beaven, M. A., G40  
Beck, G., G849  
Beck, I. T., G483  
Beck, P. L., G117  
Becker, L. C., H658  
Beckeringh, J. J., H199  
Beckman, J. S., G768  
Bedford, J. J., C788  
Beginlinger, C., G436  
Beinfeld, M. C., G864, H879  
Béliveau, L., R663  
Béliveau, R., F329  
Bell, D. R., H89  
Bell, P. D., F642  
Bell, R. C., R401  
Belles-Isles, M., E301  
Bellis, S., R485  
Bemelman, W. A., G168  
Bencsáth, F., F32  
Bengele, H. H., F391  
Bengtsson-Olivecrona, G., G711  
Benjamin, B. A., R699  
Bennington, J. B., C122  
Benos, D. J., C484, C564, C571  
Bergasa, N. V., R1043  
Berger-Ornstein, L., G837  
Bergren, D. R., R845  
Berk, B. C., C751  
Berman, S. F., C383  
Berne, R. M., H207, H223  
Bernheim, J., F358  
Bernier, M., H862  
Bernoussi, A., F484  
Berry, C. A., F828  
Bert, J. L., H384  
Bertinieri, G., H377  
Bertorello, A., F795  
Best, P. M., C107  
Beuerlein, G., C53  
Beyenbach, K. W., R154  
Bhasin, S., E84  
Biber, B., H181  
Biber, T. U. L., F95  
Bichara, M., F762  
Bichet, D., F15  
Bie, P., R161  
Biellier, H. V., E639  
Binder, B. R., R885  
Binder, H. J., F153  
Birks, R. I., R443  
Birnbaum, L., H401, H1200, H1224  
Bishai, I., R463  
Bishop, V. S., R338, R815  
Bistrian, B. R., R688  
Black, B. L., G65  
Blackburn, G. L., R688  
Blackledge, M. J., C417  
Blackmore, P. F., E449  
Blackshear, P. J., C318  
Blair, A. J., G723  
Blake, H. H., G12  
Blanco, R., H459, H468  
Bland, R. D., H487  
Blantz, R. C., F500  
Blessing, W. W., H686  
Bloch, R. J., C345  
Block, E. R., C781  
Blum, A. L., G275  
Blumenfeld, J. D., C192  
Boakes, J. L., C759, C769  
Boegholt, M. A., H919, H929  
Boer, P., F887  
Bogardus, C., E231  
Boehler, K. R., H354  
Bohlen, H. G., G389  
Boids, J. M., R310  
Bolli, R., H102  
Bolter, C. P., R834, R840  
Bomsztyk, K., C200  
Bonjour, J.-P., E260, F217  
Bonventre, J. V., F87  
Booth, D. C., H481  
Booth, F. W., C651, C657  
Borghetti, A., H840  
Borgström, P., H631  
Boron, W. F., F787  
Borriero, L., C564  
Bosch, J., G322  
Boso, D., G664  
Bosnjak, Z. J., R212  
Bostwick, H. E., G687  
Bothwell, T., C338  
Boucher, L. D., E187  
Boucher, R. C., C535  
Boudreau, G., R659, R663  
Bouillon, R., E496, E505  
Boulpaep, E. L., F153  
Bowen, B. D., H384  
Bowen, J., C323  
Boyarsky, G., F787  
Boyd, A. J., G483  
Boyer, J. L., G1, R801  
Bozdech, J. M., G610  
Brace, R. A., H734, R1007  
Brackett, D. J., H181  
Brading, A. F., G489  
Braley, L. M., R1001  
Brands, M. W., R1011  
Brashers, V. L., H72  
Brauman, H., F277  
Bray, G. A., R821  
Brazzamano, S., H751  
Breckon, R., C183  
Bréhier, A., E505  
Breit, G. A., H411  
Breitbart, G. J., H664  
Breitwieser, G. E., C582  
Brem, A. S., F547  
Brennan, B., H163  
Brenner, B. M., R793  
Brezillor, P., R134  
Bridges, R. J., C484  
Briner, G. E., G339  
Brinck-Johnsen, T., H947  
Brisson, G., R663  
Brizlee, B. L., R552  
Brock, T. A., C751  
Brodde, O.-E., H199  
Brodish, A., E617  
Brøndsted, H. E., E443  
Bronson, F. H., R616  
Brosnan, J. T., R903  
Broughton, A., H361  
Brown, A. J., F697, F754  
Brown, A. M., C206, H140, H401, H443, H1200, H1224  
Brown, C. K., G741  
Brown, D., C450  
Brown, G. F., C809, E687  
Brown, J. E., C27  
Brown, T., C304  
Brown, T. A., C323  
Brummelkamp, W. H., G168  
Bruner, L. H., H258  
Brunner, H. R., H509  
Brunner, M. J., R1, H1074  
Bruschi, G., H840  
Bruschi, M. E., H840  
Bruschke, A. V. G., H1113  
Bruzzone, R., G664  
Bubien, J. K., C397  
Buck, L. T., R611  
Buckalew, V. M., Jr., F824  
Buckley, D. J., H678  
Buckley, N. M., G156  
Budinger, M. E., F153  
Bueno, L., G637, G802  
Bukowiecki, L. J., C175  
Bullock, J. O., C20  
Burg, M. B., C788  
Burhop, K. E., H763  
Burke, C., C183  
Burke, E. P., C475  
Burman, K. D., E733

AUTHOR INDEX TO VOLUME 254

Burnatowska-Hledin, M. A., F907  
 Burnett, J. C., Jr., R56, R453, R776  
 Burnham, D. B., G130  
 Burnier, M., C839, H509  
 Burns, A. H., H265  
 Burt, J.M., H1206  
 Buse, M. G., E292  
 Bushinsky, D. A., F306  
 Busija, D.W., H671, H1023  
 Busse, R., H828  
 Butler, J., E658

Cala, P. M., C466  
 Calab, M. B., C200  
 Calaresu, F. R., R331  
 Caldwell, J., F71  
 Caldwell, M. D., E459  
 Caldwell, R. W., R84  
 Caljouw, C. J., C491  
 Campbell, W. B., C8  
 Candas, B., E104  
 Canessa, M.L., C751  
 Cann, C. E., R828  
 Cannata, J., H52  
 Cannon, B., E155  
 Cantiello, H. F., F912  
 Cantin, M., F51, F780  
 Carabello, B.A., H1034  
 Cardinal, J., F105  
 Cardinal, R., R659  
 Carey, R. M., H72, F582, F900  
 Carley, W. W., H425  
 Carlson, D. E., R289, R296  
 Carlson, S., G416  
 Carlson, E., G33  
 Carmichael, F. J., G495  
 Carmines, P. K., F440  
 Carneheim, C., E155  
 Caro, J. F., E394  
 Carpenter, T. O., E150  
 Carrall, D. T., R572  
 Carrier, F., F51  
 Carroll, K. M., G355  
 Carroll, R. G., F754  
 Carter, D. C., G566  
 Casamitjana, R., G322  
 Cassidy, S. S., H622  
 Cassin, S., H120  
 Castillo, L. B., G795  
 Castro, L., R40  
 Castro, R., R40  
 Cavallazzi, A., H377  
 Caverson, M. M., R531  
 Caverzasio, J., F217  
 Cecchin, F., E394  
 Cederberg, C., G183  
 Chabot, J.-G., E301  
 Chaichanwatanakul, K., G315  
 Challis, J. R. G., F25  
 Challis, R. A. J., C417  
 Challoner-Hue, L., F533  
 Chan, A. T., G249  
 Chan, I. S., H570  
 Chan, L., F287  
 Chance, B., C258, C699  
 Chandler, D. E., C709  
 Chang, D., E490  
 Chang, E. B., G355, G891  
 Chang, H., E23  
 Chang, T.-M., G837  
 Chanson, M., G664  
 Chao, Z., E214  
 Charney, A. N., G329

Chase, H. S., Jr., F374  
 Chaudhuri, A., F291, F684  
 Chaudhuri, G., E79  
 Chavez Chavez, R. H., H411  
 Chen, B. B., H976  
 Chen, D. G., H984  
 Chen, P.-Y., F114  
 Cherel, Y., R170, R178  
 Chernev, J. A., G151  
 Cherrington, A. D., E518  
 Chery-Croze, S., G477  
 Cheung, C. Y., H734  
 Cheung, H., C554  
 Cheung, P. T., F711  
 Chevalier, R. L., F582, F900  
 Chey, W. Y., G837  
 Chien, S., H1167  
 Chien, Y. W., R185  
 Chiu, R., C323  
 Choi, J.-L., G824  
 Chou, C. C., G695  
 Chou, C.-L., F601  
 Chow, E., G702  
 Chow, I., C63  
 Christensen, N. J., E555  
 Ciriello, J., R531, R746  
 Clandinin, M. T., E708  
 Clapham, D. E., H192, H1224  
 Clark, B. J., III, C258  
 Clark, S. A., F697  
 Clarke, E. W., E543  
 Clarke, L. L., R524  
 Classen, M., E756  
 Clausen, T., C1  
 Claybaugh, J. R., R417, R977  
 Clements, R. S., Jr., E749  
 Cliff, W. H., R154  
 Clougherty, P. W., H976  
 Clutter, W. E., E52, E537, E713  
 Clyman, R. L., F38  
 Coceani, F., R463  
 Codina, J., H1200, H1224  
 Coffman, J. D., H889  
 Cogan, M. G., F851  
 Coghlan, J. P., E566, H817  
 Cohen, R. A., H458, H468, H871, H889  
 Cohen, R. M., F657  
 Cohen, S., G224  
 Colca, J. R., E121  
 Cole, T. J., R622  
 Collet, A. J., C175  
 Collet, L., G477  
 Collins, S. M., G124, G789  
 Collins, T. J., G217  
 Cone, J., C699  
 Conklin, J. J., H558  
 Connell, R. J., R949  
 Connors, J. M., E435  
 Conway, R. S., H344, H532  
 Cooper, S. M., H473  
 Corbin, J. D., E449  
 Cordero, R., E272  
 Corey, S. P., R95  
 Cornish, K. G., H693, R727, R857  
 Coward, W. A., R622  
 Cowley, A. W., Jr., R590  
 Crabos, M., F912  
 Cragoe, E.J., Jr., C122, C150, C744, G232,  
 Crampton, J. R., G162  
 Crawford, I. L., G723  
 Crissinger, K. D., G560, G658  
 Crottogini, A. J., H664

Crouser, E., E137  
 Crowley, W. F., Jr., E652, E658  
 Cryer, P. E., E52, E537, E700, E713, E795  
 Crystal, G. J., H525  
 Culp, D., G40  
 Cunningham, M. R., H481  
 Cupples, W. A., F417  
 Curran-Everett, D. C., R595  
 Curry, D. L., E384  
 Curry, F. E., H304  
 Cusolito, S., G586  
 Cussen, L., H52  
 Cuthbert, A. W., G307  
 Czarnobilska, K., G849

Dai, X.-Z., H984  
 Dallman, M. F., R917  
 Dalsky, G. P., E537, E713  
 Daniel, E. E., G107  
 Danner, R. L., H558  
 Dao, T. K., R401  
 Darr, K. C., H340  
 Dartt, D. A., G300, G543  
 Daugaard, H., E740  
 Daul, A., H199  
 Davidson, L. A., G580  
 Davis, B. B., F145  
 Davis, C. W., C643  
 Davis, D., E760  
 Davis, D. W., E310  
 Davis, J. A., F311  
 Davis, J. P., R485  
 Davis, M. J., H772  
 Davison, J. M., F588  
 Davison, J. S., G444  
 Dawant, B., H1149  
 Dawson, D. C., C165  
 Day, T. A., R711  
 Dayal, Y., G538  
 De Beer, E. L., C491  
 De Bold, A. J., R235  
 Dekaestcker, C., F277  
 De Champlain, J., R659  
 Decking, U.K.M., H1125  
 Dee, C., E99  
 DeFronzo, R. A., E201  
 Deftos, L. J., F593  
 De Groat, W. C., R989  
 DeHaan, R. L., H170  
 De Jong, J.W., H1091  
 DeJonge, H. R., C115  
 DeJoseph, M. R., E310  
 Delahousse, M., F762  
 De las Morenas, A., H459  
 DeLuca, H. F., E402  
 Delvaux, M., G25  
 DeMaria, A. N., H481  
 Denison, A. L., R1025  
 Dennison, D., C235  
 Dent, J., G671  
 Denton, D. A., E566  
 Desautels, M., R1035  
 Deshpande, Y. G., G864  
 Despres, J.-P., E667  
 DeTarnowsky, J. M., H651  
 Deutsch, C., C286  
 De Vera Porcell, L., R242  
 Dharmasathaphorn, K., C53  
 Diakun, T. A., R102  
 Diamant, S., G156  
 Diamond, G. L., F871  
 Diamond, P., E625  
 Diaz, V. A., E609  
 DiBona, G. F., R1017

DiCarlo, S. E., R815  
 Dice, M. S., R417  
 DiDomenico, J., G93  
 Dieckgraefe, B. K., G913  
 Dieguez, G., R770  
 DiMagno, E. P., G249  
 DiMicco, J. A., R680  
 Dinda, P. K., G483  
 DiNovi, M. J., R150  
 DiPiero, A., H163  
 Di Renzo, M., H377  
 Dirkse, E. R., C63  
 Ditors, R., H1034  
 Dixon, B. S., C183  
 Dobrescu, C., E193  
 Dobson, G. P., R302  
 Dominguez, J. H., C304  
 Donatello, S., E181  
 Donevan, S. D., R544  
 Donowitz, M., G543, G586  
 Dooley, C. P., G8  
 Dorhout Mees, E. J., F887  
 Douglas, A. J., E543, E549  
 Doussa, T. P., F512  
 Downey, H. F., H417  
 Downey, J. M., H855  
 Downton, J., G671  
 Drabik, D. L., G355  
 Drake, R. E., G748  
 Drewnowska, K., F95  
 Dubach, U. C., F191  
 Dubrovsky, B., G100  
 Duclaux, R., G477  
 Dufresne, M., G25  
 Dulos, R. A., R1035  
 Dunand, M., C372  
 Dunham, P. B., C243  
 Dupuy, F., E342  
 Duthinh, V., H59  
 Dziuban, S. W., Jr., H324

Eagles, D. A., R102  
 Easton, T. G., E726  
 Eber, S. L., E639  
 Ebert, T. J., R590  
 Echtenkamp, S. F., H905  
 Eckenhoff, R. G., C614  
 Edelman, J. L., C84  
 Edgerton, E. A., G538  
 Edwards, B. S., R56, R453  
 Edwards, J. G., H592  
 Edwards, R. M., F178  
 Egan, E. A., H542  
 Egfjord, M., E740  
 Eggens, P., E389  
 Ehnmann, U. K., E601  
 Ehrlein, H.-J., G552, G650  
 Elander, B., G399  
 Elands, J., E31  
 Elaroussi, M. A., E639  
 El-Gewely, M. R., E99  
 Elk, J. R., G748  
 Ellman, M. G., E562  
 El Sabaan, M. E., G586  
 Eisas, L. J., C628  
 Elz, J. S., H678  
 Elzinga, G., H279  
 Eng, C., H344, H532  
 Engerson, T. D., G753  
 Ensunsa, J.L., H1105  
 Epstein, J.A., C847  
 Erlij, D., C816  
 Ernsberger, P., R47  
 Ervin, M. G., R40  
 Esau, S. A., C365

AUTHOR INDEX TO VOLUME 254

Eskin, S., C235  
 Esquerré, K. R., R917  
 Etlinger, J. D., E726  
 Evered, M. D., R69  
 Everett, A. F582  
 Everett, A. D., F900  
 Everse, J., H1017  
 Ewing, G., R622

Faden, A. I., R785  
 Fagreus, L., H181  
 Falipou, P., G477  
 Faraci, F. M., H286  
 Farber, J. P., R578  
 Farrell, P. A., E248  
 Faucher, D. J., R410  
 Fauth, C., F351  
 Favier, R. J., R877  
 Fay, F. S., C423  
 Feige, B. D., H584  
 Fejes-Tóth, G., H947  
 Felber, J.-P., E201  
 Feldman, G. M., C383, F657  
 Feldman, M., G723  
 Feldman, M. A., H742  
 Feldman, P. D., H756  
 Feldman, R. I., F747  
 Feng, J., R401, F432  
 Ferguson, A. V., R544  
 Ferguson, W., H542  
 Ferrari, A. U., H377  
 Ferraro, N., H727  
 Ferré, P., E407  
 Ferreiro, J. A., E733  
 Fichtenbaum, B., R524  
 Field, J. B., E214  
 Field, M., C115  
 Fielder, T., E84  
 Fill, M. D., C107  
 Fimmel, C. J., G275  
 Fink, M. P., H558  
 Finn, A. L., C643  
 Fioramonti, J., G637  
 Fisher, D. A., E337, R40  
 Fisher, R. S., C297  
 FitzGerald, G. A., R310  
 Fitzpatrick, L., G408  
 Flatt, A., G741  
 Fleisch, H., E260  
 Flik, G., R491, R891  
 Flora-Ginter, G., R204  
 Florholmen, J., E121  
 Fluharty, S. J., R95  
 Flynn, J. T., R567  
 Flynn, T. G., R809  
 Folkow, L. P., R730  
 Fong, B. S., E667  
 Forker, E. L., G463  
 Forte, L. R., E639  
 Fraim, M., R61  
 Franco, M., F642  
 Frank, B. H., C822, E349, E419, E601  
 Franzen, D., H344  
 Fraser, C. L., F837  
 Fraser, R., F697  
 Frasier, I. D., G156  
 Freeman, G. L., H801  
 Freeman, R. H., R1011  
 Freitag, C. L., F25  
 Fresard, K. M., G264  
 Freund, B. J., R417  
 Frey, M., H727  
 Friedman, B. J., H481  
 Friedman, D. W., G264

Friedman, M. I., R150, R969  
 Friedman, P. A., F62  
 Frindt, G., F240  
 Frizzell, R. A., C505  
 Frohlich, E. D., R185  
 Frohman, L. A., R917  
 Fryklund, J., G33, G399  
 Fujii, M., E685  
 Fujita, T., R761  
 Fujiwara, T., E468  
 Fukuhara, Y., E685  
 Fulcrand, P., G176  
 Furuya, W., C272  
 Fusco, M. J., F133  
 Futaki, S., H34, H292, H894, R933

Gabbai, F. B., F500  
 Gabel, J. C., G748  
 Gadis, R. R., R559  
 Galas, M. C., G176  
 Galbo, H., R197, E248  
 Galbusera, M., H1218  
 Galloway, J. A., E349  
 Gammeltoft, S., G457  
 Ganjam, V. K., R524  
 Gann, D. S., R289, R296  
 Ganz, M. B., F787  
 Gapstur, S. M., F512  
 Garan, H., H148  
 Garcia, R., F51  
 Garcia-Villalón, A. L., R770  
 Gardner, J. D., G151, G789, G883  
 Garg, M. L., E708  
 Garner, H. E., R524  
 Garty, H., C484, C512, C802  
 Garvey, J. S., E71  
 Gaskell, M. B., R641  
 Gasser, K. W., G93  
 Gauquelin, G., F51  
 Gause, G. E., H120  
 Gay, R. G., H81, H115  
 Gayeski, T. E. J., H1179  
 Gazis, D., R75  
 Geboer, G. L., R249, R257  
 Gelin, J., G450  
 Géloën, A., C175  
 Gelsema, A. J., R331  
 Genest, J., H1027  
 George, J. N., C391  
 Geraghty, J. G., G566  
 Gerber, P. P. G., E694  
 Gerencser, G. A., R127  
 Gerich, J. E., E700  
 Gettys, T. W., E449  
 Gewirtz, D. A., G732  
 Ghiron, C., G463  
 Ghishan, F. K., G74, G334  
 Giacomini, K. M., F56  
 Gibbons, L. G., G162  
 Gidday, J. M., H207  
 Giebisch, G., F615  
 Gilbard, J. P., G300  
 Giles, H. G., G495  
 Gillespie, M. N., H481  
 Gilmore, J. P., H693, R727, R857  
 Giralt, M., E71  
 Girard, J., E407  
 Gisclon, L. G., F56  
 Gisolfi, C. V., G741  
 Givens, G., F134  
 Gjedde, A., E443  
 Glass, L., H1  
 Gleason, C. A., F38

Glorioso, N., F895  
 Gluck, S., F71  
 Gluckman, P. D., E318  
 Go, V. L. W., E767, G249  
 Goda, T., G907  
 Godt, R. E., C591  
 Goetz, K. L., E1, R161, R204  
 Goldberg, J. M., H584  
 Goldfarb, R. D., H324  
 Goldman, S., H81, H115  
 Goldspink, D. F., E543, E549  
 Goldstein, I., H459, H468  
 Goldstein, J. L., C719  
 Goldstein, M., F795  
 Goll, H. M., H976  
 Gómez, B., R770  
 Gomez, G., E513  
 Gomez, R. A., F582, F900  
 Gonzalez, G., R75  
 Gonzalez Gonzalez, J., R242  
 Goodrich, A. L., G870  
 Gordon, C. J., R229  
 Gordon, F. D., F391  
 Gosink, E., G269  
 Gossé, F., G907  
 Goto, M., H1010  
 Goto, Y., H34, H292, H894  
 Graham, T. E., C587  
 Grandjean, C. J., G373  
 Granger, D. N., G275, G339, G560, G658, G753, H702, H823  
 Granger, H. J., H1211  
 Granger, J. P., F507, F527  
 Graves, W., H547  
 Gray, K. L., G300  
 Greaser, M. L., C605  
 Greeley, G. H., Jr., E513  
 Green, D. M., R357  
 Green, D. R., E518  
 Green, H., C661  
 Greenfield, J. C., Jr., H751  
 Greenway, C. V., H452  
 Grega, G. J., H1042  
 Gregg, C. M., R925  
 Gregory, L. C., E490  
 Griffin, L. D., C628  
 Griggs, R. C., E208  
 Grill, H. J., R853  
 Grinditch, G. K., E633  
 Grindeland, R. E., R78, R828  
 Grinstein, S., C272  
 Grisdale-Helland, B., E414  
 Grisham, M. B., H702, H823, H1017  
 Grizzel, W. E., E749  
 Gronich, J. H., F87  
 Groscolas, R., R61  
 Gründeman, R. L. F., C491  
 Grybowski, D. M., G151  
 Guay, G., C175  
 Gue, M., G802  
 Guevara, M. R., H1  
 Guggino, W. B., C691, F615  
 Gullans, S. R., C192  
 Gumm, D. C., H473  
 Gustaw, P., G849  
 Guthrie, G. P., Jr., E187  
 Gutkowska, J., H1027, F51, F780  
 Gutman, M. B., R746  
 Guyton, A. C., H1194  
 Gyulai, L., C699

Haas, J. A., F507, F527  
 Hagine, A., R518

Haglund, U., G471  
 Hai, C.-M., C99  
 Haisenleder, D. J., E99  
 Hajdu, M. A., R424  
 Halevy, J., F153  
 Hall, B., R903  
 Halliday, D., E208  
 Halm, D. R., C505  
 Halpern, W., H28  
 Halter, J. B., E222  
 Hamill, R. W., E287  
 Hamilton, J. S., R457  
 Hammer, R. L., R572  
 Hammerman, M. R., F711  
 Hammond, R. L., C258  
 Hanley, D. F., H742  
 Hansell, P., F492  
 Hansen, B., E454  
 Hansen, O., C1  
 Hansen, R. J., R648  
 Haramati, A., R776  
 Hardison, W. G. M., G269  
 Hargrove, D. M., E16, E193  
 Harrap, S. B., F697  
 Harris, D. C. H., F267, F425  
 Harrison, D. G., H473  
 Hart, M. N., C37  
 Hashimoto, K., R863  
 Hashiro, G. M., R417  
 Hasser, E. M., R815  
 Hatfield, D., R524  
 Hattori, M.-A., E476  
 Hattori, T., R740  
 Haupert, G. T., Jr., F912  
 Hawker, J. R. Jr., H1211  
 Hawkins, R. A., E310  
 Hayakawa, B. N., C338  
 Hayashi, Y., H1081  
 Hayhurst, R. A., F689  
 Haymond, M. W., E700  
 Hays, S. R., F9  
 Hayslett, J. P., F153  
 Hazinski, T. A., H487  
 Hearse, D. J., H862  
 Heath, J. E., R389  
 Hebert, S. C., C192  
 Heddle, S., G671  
 Hedeskov, C. J., E454  
 Hedge, G. A., E435  
 Heigenhauser, G. J. F., R117  
 Heinz-Erian, P., G883  
 Heisler, S., E301  
 Heistad, D. D., H126, H286  
 Helander, H. F., G399  
 Helland, S. J., E414  
 Helman, S. I., C165  
 Hemker, D. P., R1025  
 Heng, J., E137  
 Henning, S. J., G12  
 Henry, W. L., Jr., E459  
 Herman, P. J., R1017  
 Herndon, D. N., H833, R567  
 Herrman, J., E419  
 Hersey, S. J., G856  
 Herz, A., G622  
 Herzberg, G. R., R903  
 Heublein, D. M., R56  
 Heymann, M. A., F38  
 Heyndrickx, G. R., H817  
 Hida, T., C318  
 Hidalgo, J., E71  
 Hildebrandt, D. A., F210  
 Hill, H. E., H207  
 Himmis-Hagen, J., R960  
 Hinder, R. A., G275

AUTHOR INDEX TO VOLUME 254

Hiramatsu, O., H1010  
 Hiramori, K., R933, H894  
 Hirata, M., C45  
 Hirose, R., G891  
 Hirt, E., H163  
 Hjelle, J. T., F593  
 Ho, H., E23  
 Hoch, B. S., F139  
 Hochachka, P. W., R302, R611  
 Hock, C. E., H494  
 Hoffman, A., R776  
 Hoffman, B. B., E23  
 Hoit, B. D., H1065  
 Hoka, S., R212  
 Hökfelt, T., F795  
 Holahan, M. A., H494  
 Hole, R. L., E167  
 Holland, B., E513  
 Hollenberg, N. K., R1001  
 Hollozy, J. O., E537, E713  
 Höllwarth, M. E., G753  
 Holm, L., G281  
 Holstein, B., G183  
 Holt, S., E162  
 Holtzman, E. J., R1001  
 Homaidan, F. R., G586  
 Homcy, C. J., H148  
 Homma, S., F512  
 Honde, C., G802  
 Honeyman, T. W., C423  
 Hong, S. K., R235, R595  
 Honig, C. R., H1179  
 Hootman, S. R., G242  
 Hopfer, U., G93  
 Hor, R., C251  
 Horie, T., G465  
 Horowitz, B., C323  
 Horowitz, M., G671, R109  
 Horwitz, B. A., R457, R908  
 Hosomi, H., F540  
 Houghton, L. A., G671  
 Houser, S. R., H59  
 Hsu, C. T., G680  
 Hayu, P.-H., F56  
 Huang, M. M. E., E579  
 Huang, Z.-S., R249  
 Huberdeau, D., F484  
 Hudak, M. L., H156  
 Huffman, L. J., E435  
 Huffman, W. F., F165  
 Hughes, B. A., C84  
 Hui, A. C., F56  
 Huizinga, J. D., G702  
 Hulman, S., E137  
 Hundley, W. G., H67  
 Hunninghake, G. W., C809  
 Hunter, R. L., C20  
 Hunyady, L., C744  
 Huott, P. A., C53  
 Hura, C. E., F734  
 Hurley, T. W., C621  
 Huxley, V. H., H304, H317  
 Hyman, P. E., G680

Ida, T., E92  
 Igarashi, Y., H894  
 Iimura, O., H855  
 Illsley, N. P., F114  
 Imai, E., E685  
 Imai, M., F232, F323  
 Imura, H., E92  
 Inomata, K., G878  
 Inoue, T., H1142  
 Inscho, E. W., F440  
 Intaglietta, M., H411, H631

Inui, K.-I., C251  
 Irwin, C. L., G775  
 Ishida, T., E214  
 Ishikawa, T., G639  
 Ishizuka, J., E513  
 Israel, Y., G495  
 Istfan, N. W., R688  
 Ito, K., G814  
 Ittoop, O., E394  
 Iversen, B. M., F284  
 Iwamoto, J., R977  
 Iwata, N., R396  
 Iwata, T., C251

Jackson, D. C., R944  
 Jacob, R., G1  
 Jacobsen, C., F628  
 Jacoby, M., F139  
 Jacques, L. B., R102  
 Jacquiez, J. A., E222  
 Jaeger, L. F., R90  
 Jahoor, F., E532  
 Jameel, M. L., E99  
 Jameson, D. M., R401  
 Jamison, R. L., F477  
 Jamshaid, A., F15  
 Jan, K.-M., H1167  
 Janssen, H. F., H1017  
 Jard, S., E31  
 Jaworek, J., G849  
 Jay, M., H481  
 Jeandel, L., E301  
 Jefferson, L. S., C634  
 Jeffries, W. B., F739  
 Jendralla, H., G849  
 Jeng, C.-Y., E23  
 Jenkins, R. L., E749  
 Jennings, G., R11  
 Jensen, M. D., E562, E700  
 Jensen, R. T., G151, G789, G883  
 Jequier, E., E201  
 Jimenez, J., E667  
 Jing, J., G680  
 Jochen, A. L., E365  
 Johansen, A., H1051  
 Johns, D. W., F900  
 Johnsen, H. K., R730  
 Johnson, A. R., C8  
 Johnson, E. I. M., E566  
 Johnson, K. J., H258  
 Johnson, L. R., G81, G408  
 Johnson, L. W., C773  
 Johnson, M. D., E265  
 Johnson, M. L., E113  
 Johnson, P. C., H919, H929,  
 H1149  
 Johnson, R. L., Jr., H622  
 Joles, J. A., F887  
 Jones, A. W., C75  
 Jones, C. E., H417  
 Jones, H. P., G753  
 Jones, M. D., Jr., H156  
 Jones, R. H., E214  
 Jones, S. B., R470  
 Jones, S. M., F240  
 Jones, S. W., G883  
 Joseph, D. P., C84  
 Joshi, S., F134  
 Joy, R. M., E384  
 Judd, H. L., E79  
 Juengling, E., H1125  
 Julien, P., E667  
 Junien, J. L., G802  
 Jürgen Lenz, H., G920

Kagiyama, M., H1010  
 Kagnoff, M. F., C53  
 Kahn, A. M., C441  
 Kahn, C. R., E429  
 Kahn, T., F385  
 Kaiser, D. L., E113  
 Kajiya, F., H1010  
 Kakehi, T., E92  
 Kako, K., C330  
 Kall, D., E579  
 Kamada, T., E885  
 Kaminski, D. L., G864  
 Kammermeier, H., H785, H1125  
 Kampine, J. P., R212  
 Kanai, K., R761  
 Kaneda, N., R396  
 Kang, Y. H., H1004  
 Kangawa, K., G814, F540  
 Kannan, M. S., H1142  
 Kanno, T., C727, G575  
 Kantom, M., G819  
 Kaplan, J. E., H763  
 Kariv, N., F358  
 Karmann, H., R170  
 Garrison, T., E349  
 Kasai, S., G465  
 Kaslow, H. R., E720  
 Kasper, C. E., C605  
 Kass, D., H547, H619  
 Kasting, N. W., R513  
 Kato, M., C330, E476  
 Kato, P., F593  
 Katovich, M. J., R33  
 Katz, A., C587  
 Katz, M. S., E54  
 Kaufman, S., R284  
 Kaunitz, J. D., G502  
 Kayser, S., C744  
 Kazilek, C. J., C79  
 Keeton, T. K., H1187, R338  
 Keil, L. C., E490  
 Keller, U., E694  
 Keller-Wood, M., R23  
 Kelly, C. A., C432  
 Kenney, M. J., G741  
 Kent, J. D., C634  
 Johns, D. W., F900  
 Khawaja, S., G201  
 Kiens, B., E555  
 Kiesel, G., F245  
 Kikuchi, K., G334  
 Kim, D., H20  
 Kim, J. K., F254  
 Kim, S. H., F432  
 Kimura, R., H833  
 Kinden, D. A., G339  
 King, B. M., R917  
 King, D. S., E537  
 King, G. L., C411  
 Kinter, L. B., F165  
 Kirk, E. S., H532  
 Kirk, K. L., F719  
 Kirsch, G. E., H443, H1200,  
 H1224  
 Kirschenbaum, M. A., F291,  
 F684  
 Kirschner, L. B., R984  
 Kjær, M., R197  
 Klassen, M. G., H937  
 Kleaveland, J. P., H1034  
 Klepper, D., C491  
 Kliegman, R., E137  
 Kliegman, R. M., E579  
 Klintworth, G. K., C318  
 Klopper, P. J., G168  
 Klotzbach, J. M., F871

Knauf, P. A., C122  
 Kneip, J. M., G843  
 Knox, F. G., F507, F52  
 Ko, K. R., H133  
 Koch, M. J., G824  
 Kochsiek, K., H438  
 Koehler, R. C., H156  
 Koelbel, C. B., G201  
 Kofod, H., E454  
 Kohan, D. E., F879  
 Koivisto, V. A., E175  
 Koldovský, O., G907  
 Koller, A., H1149  
 Kondo, Y., F232  
 Kontos, H. A., H67  
 Konturek, S. J., G849  
 Koomans, H. A., F887  
 Koretsky, A. P., F401  
 Korner, P. I., H361  
 Korthuis, R. J., G339, H274,  
 H702, H823  
 Kortlandt, W., F887  
 Kotchen, T. A., E187  
 Kotlikoff, M. I., C793  
 Kottra, G., F32  
 Koubi, H. E., R877  
 Koyama, S., R761  
 Kracke, G. R., C243  
 Kraehenbuhl, J.-P., C372  
 Kramer, R. E., E243  
 Krane, R. J., H459, H468  
 Krasney, J. A., R595  
 Krause, W. J., E639  
 Kravetz, D., G322  
 Krief, S., E342  
 Kriz, W., F1  
 Krueger, J. W., C577  
 Krukoff, T. L., R508  
 Kucharczyk, J., F15  
 Kühl, P. G., R310  
 Kuhn, W. F., G732  
 Kuipers, F., G644  
 Kumagai, J., G81  
 Kumar, B. A., R222  
 Kunau, R. T., Jr., F734  
 Kunze, D. L., H140  
 Kuo, L., H331  
 Kurahashi, M., G878  
 Kuriyama, H., C45  
 Kuroiwa, C., G242  
 Kuschinsky, W., H250  
 Kussmaul, W. G., H1034  
 Kusunoki, M., G819  
 Kusunoki, T., R740  
 Kuwahara, M., F828  
 Kuzuya, H., E92  
 Kvietys, P. R., G275, G560, G658

Laburthe, M., G457  
 Lacombe, J., H217  
 Lacy, D. B., E518  
 Lacy, P. E., E52  
 Lafeber, F. P. J. G., R891  
 Laguzzi, R., H217  
 Lahorra, M. A. G., F202, F668  
 Laine, G. A., G748  
 Laird, J. D., H636  
 Lake, J. R., G232  
 Lalonde, J., E104  
 Lam, R. W., R40  
 Lamontagne, D., R659  
 Lancaster, L. D., H81, H115  
 Landler, U., G753  
 Lang, C. H., E16, E193  
 Lang, I. M., G254, G595

AUTHOR INDEX TO VOLUME 254

Langer, G. A., H937  
 Lannigan, D. A., C122  
 Lanoce, V., H727  
 Laptook, A. R., R410  
 Larsen, E. H., C535  
 Larsen, P. R., E323  
 Larsson, H., G33  
 Lategan, T. W., G489  
 Latham, L. B., H72  
 Lauber, C., H592  
 Laughlin, M. H., H274, H954  
 Laur, J., G176  
 Lautt, W. W., H452  
 Lavallée, M., F780  
 Lavau, M., E342  
 Lavoie, J.-M., R602  
 Law, W. R., H970  
 Lawton, A., F311  
 Layden, T. J., C719  
 Layer, P., G249  
 Leadley, R. J., Jr., R161, R204  
 Leake, R., F38  
 Leake, R. D., R40  
 Lebenthal, E., G315  
 LeBlanc, J., E625  
 Lechene, C., C847  
 Leclercq, R., F277  
 Lee, K., H324  
 Lee, K. Y., G837  
 Lee, L. A., E287  
 Lee, P. A., H719  
 Lee, P.-C., G315  
 Lee, R. W., H81, H115  
 Lee, S. C., C286  
 Lee, V. M., R648  
 Lees, J., R463  
 Leffler, C. W., H671, H1023  
 Le Hir, M., F191  
 Leloup, J., R178  
 Le Maho, Y., R61, R170, R178  
 Lerner, M. R., H181  
 Lernmark, Å., E454  
 Lesikar, D. D., E720  
 Lester, D. S., C802  
 Levasseur, J. E., H67  
 Levens, N. R., G135  
 Lever, A. F., F697  
 Leviel, F., F762  
 Levine, A. S., G361, G843  
 Levine, D. Z., F15  
 Levine, R. A., G57  
 Levine, S. D., F139  
 Levitan, H., C141  
 Levitt, D. G., G843  
 Levitt, M. D., G843  
 Lew, W. Y. W., H1065  
 Lewandowski, A. E., C634  
 Liao, W. S. L., C634  
 Lieber, R. L., C759, C769  
 Liebowitz, S. F., R222  
 Ligeti, L., C699  
 Liggett, S. B., E795  
 Lightman, S. L., R607  
 Lignon, M.-F., G176  
 Lima, J., H547  
 Lin, C.-H., G315  
 Lin, H., F704  
 Lin, M. T., R499  
 Linares, O. A., E222  
 Lindbom, L., H631  
 Lindheimer, M. D., R478, F588  
 Lindinger, M. I., R117  
 Lindsay, T., H578  
 Ling, P. R., R688  
 Lipton, J. M., R401  
 Lisker, W., F593  
 Lissens, W., E496  
 Little, W. C., H801  
 Liu, A., H1149  
 Liu, F.-Y., F851  
 Livio, M. I., H1218  
 Llobera, M., G711  
 Lloyd, M. C., F432  
 Lluch, S., R770  
 Lluis, F., E513  
 Lo, S. K., H763  
 Lobo, M. V., E144  
 Lochs, H., E588  
 Lockard, J. W., C297  
 Lockette, W., H163  
 Loeb, J. M., H651  
 Logothetis, D. E., H192  
 Lohneier, T. E., F754  
 Longhurst, J. C., H354  
 Longo, N., C628  
 Lönnedal, B., G580  
 Lopez, J. A., H148  
 Lord, M., R602  
 Lorenz, J. N., E187  
 Lortie, G., R197  
 Loughlin, G. M., C691  
 Louie, D. S., G210  
 Lowe, P. J., G269  
 Lowney, P., R648  
 Loyd, J. E., R310  
 Lu, R.-B., G315  
 Lubbesmeyer, H. J., R567  
 Lucas, A., R622  
 Ludemann, R., E726  
 Luft, F. C., R680  
 Luhmann, K., H324  
 Luk, G. D., G194  
 Lukaszewski, L., R17  
 Lund, D. D., H187  
 Lundgren, C. E. G., H542  
 Lundholm, K. G., G450  
 Luo, R., R212  
 Lye, S. J., F25  
 Lynch, K. R., F582, F900  
 Lynch, R. D., C432  
 MacAnespie, C. L., R1  
 Macey, R. I., C669  
 MacGregor, R. R., E279  
 Machen, T. E., C130, C498, G925  
 MacPhee, A. R., R185  
 MacVittie, T. J., H558  
 Madara, J. L., G416  
 Maddern, G. J., G671  
 Magen, H., F358  
 Mahoney, C., F593  
 Majumdar, A. P. N., G538  
 Makhlouf, G. M., G20  
 Malik, A. B., H763  
 Malkinson, T. J., R513  
 Mallory, B., R989  
 Malvin, R. L., F432  
 Mancia, G., H377  
 Mandel, L. J., R1043, F407  
 Mangiapane, M. L., H963  
 Mangino, M. J., G695  
 Mans, A. M., E310  
 Mantey, S., G883  
 Marchetti, C., C206  
 Marcus, M. L., H473  
 Margolis, T. I., H20  
 Margolius, H. S., G307  
 Marino, L., G87  
 Marino, P., H547  
 Marker, J. C., E713  
 Maron, M. B., H912  
 Maron, R., E429  
 Marsh, D. J., F417, F445, F601  
 Marsh, J.D., H20, H1133  
 Marshall, J. C., E99  
 Martin, D. S., H45  
 Martin, J. R., H879  
 Martin, P. J., H313  
 Martinez, J., G176  
 Marusic, E. T., E144  
 Maruyama, K., H500  
 Marvig, J., G254  
 Massaro, D., R755  
 Massaro, G. D., R755  
 Massik, J., H156  
 Mastrofrancesco, B., E459  
 Masumi, S., E482  
 Matheraviddathu, S., G856  
 Matherne, G. P., R277, F634  
 Matkin, C., G300  
 Maton, P. N., G789  
 Matsumoto, T., C727, G575  
 Matsuo, H., G814, F540  
 Matsuoka, S., H1010  
 Matsuoka, T., C330  
 Matthai, W., H727  
 Maughan, D. W., C591  
 Maughan, W. L., H547, H658  
 Mauray, F., F38  
 Mayer, E. A., G201  
 Mayhan, W. G., H286  
 Mazzeo, A. R., G57  
 McBride, D. E., G898  
 McCall, A. L., E272  
 McCoy, L., R755  
 McCulloch, T., H693  
 McCully, K., C258  
 McDaniel, M. L., E121  
 McDonald, G., C699  
 McDonald, J. V., E287  
 McDonald, R. B., R457, R908  
 McDonough, A. A., C323  
 McDougall, J. G., E566, H811  
 McHugh, P. R., R628  
 McIlroy, M. B., H609  
 McIntosh, T. K., R785  
 McKay, C. B., H238  
 McKelvey, T. G., G753  
 McKenna, T. M., R436  
 McMahon, S., H592  
 McMillan, M., F895  
 McNamara, C., R320  
 McNeill, J. R., H45  
 Meda, P., G664  
 Medow, M. S., G687  
 Meikle, A. D. S., R284  
 Meininger, C. J., H1211  
 Meininger, G. A., H709  
 Meiselman, H. J., H228  
 Mekhfi, H., H517  
 Mendlowitz, M., R75  
 Mendre, C., G176  
 Mento, P. F., E681  
 Mercier, O., F762  
 Merkle, C. J., C709  
 Merrifield, R. B., E454  
 Merrill, G. F., H417, H1004  
 Meschia, G., R585  
 Metzler, C. H., R699  
 Meunier, J. M., H217  
 Meunier, P., G477  
 Meyer, R. A., C548  
 Meyer, T. W., F856  
 Meyer-Lehnert, H., F254  
 Michaels, S., F345  
 Michel, M. C., H199  
 Michelangeli, F., G531  
 Michielsen, P. J., F463  
 Mickle, D. A. G., H578  
 Mikami, H., E685  
 Miki, K., R235, R977  
 Mikines, K. J., E248  
 Miles, J. M., E562, E700  
 Milhaud, G., R134  
 Miller, C. E., G189  
 Miller, E. D., Jr., H72  
 Miller, G. J., F425  
 Miller, L. J., G294  
 Miller, M. A., E349  
 Miller, S. S., C84  
 Miller, W. C., C560  
 Miller, W. J., E292  
 Milley, J. R., E572  
 Mills, C. D., E459  
 Mills, I., E323  
 Milojevic, S., R809  
 Mircheff, A. K., G543  
 Mirhashemi, S., H411  
 Mirro, R., H671, H1023  
 Mito, K., H1010  
 Miura, T., H855  
 Miyakawa, K., R761  
 Miyata, A., F540  
 Miyazawa, T. M., R331  
 Miyoshi, H., E532  
 Mizuma, T., G465  
 Moffett, T. C., H570  
 Mogard, M., G201  
 Mogenson, G. J., R746  
 Mohamed Shakir, K. M., E733  
 Mohanty, P. K., R320  
 Mohler, F. S., R389  
 Mohrman, D. E., H369  
 Moises, H. C., H756  
 Moldawer, L. L., G450  
 Molina, C., F562  
 Molina, R. D., R585  
 Monick, M. M., C809  
 Montani, J.-P., H1194  
 Montorsi, P., F895  
 Moore, S. A., C37  
 Moran, A., C512  
 Moran, T. H., R628  
 Morel, G., E301  
 Morey-Holton, E. R., R828  
 Morgan, B. J., H340  
 Morigi, M., H1218  
 Morii, S., H133  
 Morimoto, A., R633  
 Morin, F. C., III, H542  
 Morin, J., E407  
 Morita, H., F540  
 Morkin, E., H81  
 Morley, J. E., G361  
 Morris, D. J., F547  
 Morris, G. P., G117  
 Morris, P. B., C318  
 Morrissey, J. J., E63  
 Morrow, L. A., E222  
 Morse, E. L., E588  
 Moss, R. L., C605  
 Mott, D. M., E231  
 Moyer, M. S., G870  
 Moyes, C. D., R611  
 Mujais, S. K., F845  
 Mullen, M., C338, H500  
 Mullins, R. E., C20  
 Munger, K., F223  
 Murad, F., F562  
 Murakami, M., G575, G781

AUTHOR INDEX TO VOLUME 254

Murakami, N., R633  
 Murphy, H.R., C788  
 Murphy, J.G., H1133  
 Murphy, R. A., C99  
 Murray, P. A., H976  
 Murthy, S. N. S., G538  
 Mustapha, A., C330  
 Myers, B. D., F562  
 Mybre, E.S.P., H1051  
 Myllylä, R., R897  
 Myllylä, V., R897  
 Nadeau, R., R659, R663  
 Nadel, A. S., R793  
 Nagai, K., E468  
 Nagasawa, K., H1081  
 Nagatsu, T., R396  
 Nair, K. S., E208  
 Nakagawa, H., E468  
 Nakahara, D., R396  
 Nakamori, T., R633  
 Nakamura, K. T., R277, F634, F771  
 Nakamura, M., H1081  
 Nandi, J., G57  
 Narasimha Rao, P., E658  
 Náray-Fejés-Tóth, A., H947  
 Nash, N. T., C719  
 Nassar-Gentina, V., C675  
 Natanson, C., H558  
 Navab, F., G630  
 Navar, L. G., F440, F642  
 Navarro, L., C235  
 Nayler, W. G., H678  
 Nedergaard, J., E155  
 Neer, E. H., H1224  
 Negulescu, P. A., C130, C498  
 Nelson, D. O., R47  
 Netchitailo, P., R170  
 Newton, L. D., F562  
 Ngai, A. C., H133  
 Niebel, W., G436  
 Nielsen, J. T., F802  
 Nielsen, S., F802  
 Nieukoop, A.S., H1091  
 Niitani, S., R192  
 Nishida, Y., F540  
 Nishijima, H., H1081  
 Nishimura, H., E92  
 Nissen, S., E372, E414  
 Nitkin, R., F562  
 Noguchi, T., E685  
 Normand, M., E104  
 Nosjean, A., H217  
 Novikoff, A.B., C829  
 Novikoff, P.M., C829  
 Novin, D., G639  
 Novotny, M. J., H954  
 Nowicki, P. T., G189  
 Nozawa, T., H34, H292, H894, R933  
 Nushiro, N., F521  
 Nussberger, J., H509  
 Nyhan, D. P., H976  
 Oberleithner, H., F608, F615  
 O'Brian, J. T., E733  
 O'Brien, P. C., E767  
 O'Brodovich, H., H500  
 Ochi, M., R740  
 O'Connor, W.N., H1099  
 Oda, S., R518  
 O'Dea, L. St. L., E658  
 Odio, M. R., E617  
 Ofstad, J., F284  
 Ogasawara, Y., H1010  
 Ogilvie, A., H828  
 O'Grady, S. M., C115  
 Ohara, I., G424  
 Ohba, H., R192  
 Ohneda, A., R518  
 Öjteg, G., F364  
 Okamoto, M., E92, E429  
 Olgaard, K., E740  
 Olivecrona, T., G711  
 Oliviero, P., H517  
 Olley, P. M., H500  
 Olson, C. E., G49  
 Olszowy, M. W., C304  
 O'Neil, R. G., F689  
 O'Neill, P. G., H102  
 Ono, T., R633  
 Opgenorth, T. J., R453  
 Orci, L., C450  
 Ordway, G. A., H354  
 Orita, Y., E685  
 Orrego, H., G495  
 Ortolano, G. A., E99  
 Oscai, L. B., C560  
 Osol, G., H28  
 Ostaszewski, P., E372  
 Oswald, R. E., E328  
 Ota, Z., R863  
 Otsuka, S.-I., G424  
 Otsuka, Y., H163  
 Ott, C. E., E187  
 Ouyang, A., G224  
 Overbeck, H. W., H230  
 Overton, J. M., H592  
 Owlia, A., G217  
 Owusu, K., G156  
 Owyang, C., G210  
 Ozaki, N., R396  
 Pacholski, M., F547  
 Paillard, M., F762  
 Palade, G. E., H425  
 Palm, D., H199  
 Palmer, W. K., C560  
 Panzenbeck, M. J., R424  
 Papavasiliou, S., E99  
 Paquin, M., H115  
 Pardini, B. J., H187  
 Pardridge, W. M., E79  
 Parent, A., H1027  
 Parent, L., F105  
 Park, J. H. Y., G373  
 Parker, C. R., R410  
 Parkes, D. G., H811  
 Parkhouse, W. S., R302  
 Parks, D. A., G768  
 Parrillo, J. E., H558  
 Pascaud, X., G802  
 Patel, K.P., H1172  
 Patterson-Buckendahl, P. E., R828  
 Paulin, A., R602  
 Paumgartner, G., G622  
 Pawlik, W., G849  
 Pawłowska, D., F507, F527  
 Pazzola, A., G895  
 Peach, M. J., F582, F900  
 Peacock, N., E84  
 Pedotti, A., H377  
 Pelacca, A., G531  
 Pelayo, J. C., F184, F425  
 Pena, J. R., E214  
 Pendrak, M. L., E150  
 Penkoske, P. A., H804  
 Pepin, E. B., H592  
 Peraino, R. A., F45  
 Perault-Staub, A. M., R134  
 Perdue, M. H., G444  
 Peronnet, F., R659, R663  
 Perrone, R. D., G898  
 Perry, M. A., G281, G366  
 Perry, S. F., R491, R891  
 Persson, B.-E., F445  
 Peterson, C., F562  
 Peterson, L. N., F15  
 Peterson, T. V., R699  
 Pettinger, W. A., F739  
 Petty, F., G723  
 Pfeiffer, A., G622  
 Pfennig, T. W., R1025  
 Phillips, P. R., F588  
 Phillips, J. E., R348  
 Phillips, M. I., C404  
 Pian-Smith, M. C. M., E167  
 Piantadosi, C. A., H719  
 Pichel, R. H., H664  
 Pichet, R., F780  
 Piene, H., H1051  
 Pilati, C. F., H912  
 Pillion, D. J., E749  
 Pion, I., F345  
 Pittman, Q. J., R513  
 Pittman, R. N., H331  
 Pitts, E., R607  
 Pizcueta, M. P., G322  
 Podjarny, E., F358  
 Poelling, R. E., E639  
 Pohl, U., H828  
 Polk, D. H., E337  
 Pollard, H. B., C675  
 Polonia, J., F895  
 Polonsky, K. S., E349  
 Pomeranz, A., F358  
 Poortmans, J. R., F277  
 Popel, A.S., H1149  
 Porter, J. C., R410  
 Porter, J. P., R325  
 Possani, L. D., H443  
 Potter, T. J., G361  
 Pouleur, H., H817  
 Powell, W. J., Jr., H148  
 Power, G. G., E318  
 Powers, M. R., H89  
 Powers, S. P., G294  
 Praissman, M., R17  
 Prasad, K. R., G595  
 Price, M., C286  
 Prier, T., H833  
 Proppe, D. W., H11  
 Pruitt, N. L., R870  
 Prystowsky, M. B., C286  
 Pumpin, D. W., C345  
 Puschett, J. B., C304  
 Quale, J. M., R1043  
 Qualy, J. M., H993  
 Quillen, E. W., Jr., E490  
 Rabinovitch, M., C338, H500  
 Rabinowitz, L., R357, R381  
 Rabito, C. A., C432  
 Rabkin, R., C822, E419, E601, F593  
 Radda, G. K., C417  
 Radke, K. J., E243  
 Raff, H., R431  
 Rafka, R., R150  
 Raison, J. K., E378  
 Raj, J. U., H487  
 Ramanathan, M., H622  
 Rannels, D. E., C684  
 Rannels, S. R., C684  
 Rao, M. C., C719  
 Rapoport, S. I., C141  
 Rathaus, M., F358  
 Rauch, A. L., F824  
 Raul, F., G907  
 Rawashdeh, N. M., R706  
 Ray, N. D., R706  
 Raya, T. E., H81  
 Raymond, R. M., H970  
 Read, N. W., G671  
 Reaven, G. M., E23, E39  
 Rechekemmer, G. R., C505  
 Rector, F. C., Jr., F828  
 Redl, H., H833  
 Reed, H. L., E733  
 Reed, J. B., C475  
 Reed, R. K., H384  
 Reed, T. A., G610  
 Rees, W. D. W., G162  
 Regolisti, G., H840  
 Reibel, D. K., H494  
 Reid, I. A., E490  
 Reiser, P. J., C605  
 Rembert, J. C., H751  
 Remuzzi, G. H., H1218  
 Renaldo, G. J., H67  
 Reneman, R.S., H795, H1059  
 Renner, E. L., G232  
 Rennke, H. G., F856  
 Rettke, C., F145  
 Reuben, A., G346  
 Reverdin, E. C., C226  
 Reviczyk, A. L., E337  
 Revtyak, G. E., C8  
 Reyes, J., C564, C571  
 Ribet, A., G25  
 Rich, T. L., H937  
 Richards, M. A., F895  
 Richardson, S. B., E358  
 Richter, E. A., E555  
 Ricordi, C., E52  
 Ridgeway, R. D., E279  
 Riedel, G.L., H1187  
 Rieger, G. A. J., H438  
 Ringstrom, S. J., E595  
 Rivera, F., G322  
 Rizza, R. A., E767  
 Roach, E., G513  
 Roarty, T. P., R431  
 Roberts, R., H102  
 Roberts, S. B., R622  
 Robertson, G. L., R641  
 Robillard, J. E., R277, F634, F771  
 Robin, J.-F., R61, R170  
 Robinson, M. M., R69  
 Roehlitz, H., G622  
 Roch-Ramel, F., F351, F554  
 Rodés, J., G322  
 Rodriguez, C. L., G531  
 Rodriguez, M., G176  
 Roels, L. M., F463  
 Rogers, P. J., E562  
 Rogerson, M., R903  
 Røigaard-Petersen, H., F628  
 Rojas, E., C675  
 Rolfs, M. M., G870  
 Roman, C., F38  
 Romaschin, A. D., H578  
 Romero, J. C., F507  
 Rose, C. E., Jr., H72  
 Rose, J. C., R706  
 Rose, K. Y., H72

AUTHOR INDEX TO VOLUME 254

Rose, P. A., R69  
 Rose, R. C., G824  
 Rosen, S. G., E222  
 Rosenberg, H. C., H500  
 Rosenblatt, J., E526  
 Rosenblum, J. L., G775  
 Rosenfeld, C. R., R410  
 Ross, M. G., R40  
 Rossi, S. R., G300  
 Rossier, B., F351  
 Rossier, B. C., C372, C512  
 Roth, R. A., H258  
 Rothenberg, R. J., C554  
 Rothwell, N. J., E162  
 Rouse, D., F45  
 Rousseau, M. F., H817  
 Roust, L. R., E767  
 Rouyer-Fessard, C., G457  
 Rubenstein, A. H., E349  
 Rubin, L. J., C27  
 Rubinstein, J., F145  
 Rubio, R., H207, H223  
 Ruderman, N. B., E272  
 Ruiz, M.-C., G531  
 Rummel, W., C484  
 Rumrich, G., F453  
 Rumsey, W. L., H599  
 Runge, H. C., E45  
 Russell, J. M., C582  
 Ryberg, A., R857  
 Ryberg, B., G33

Sachs, G., G856  
 Saenz de Tejada, I., H459, H468  
 Saez, J.C., C829  
 Safarik, R. H., E384  
 Saffouri, B., G20  
 Sagawa, K., H1074  
 Sagawa, S., R235, R977  
 Saito, H., C251  
 Sakai, T., F417, F445  
 Salata, J.J., H1157  
 Saldivia, V., G495  
 Salmons, S., C258  
 Saltin, B., E555  
 Salviati, G., C459  
 Samueloff, S., R109  
 Samuelson, A.C., C829  
 Sanders, K. M., C475  
 Sanderson, M. J., C63  
 Sandler, H., F562  
 Sandridge, M. P., H72  
 Sandrin, S., G495  
 Sanfield, J. A., E222  
 Sarason, R. L., R357  
 Sardet, C., R61  
 Sarna, S. K., G254, G595  
 Sarnacki, P., F837  
 Sasaki, Y., R518  
 Sasaki, T., R396  
 Sato, F., C310  
 Sato, K., C310  
 Saunier-Blache, J. S., G25  
 Sauvè, R., F105  
 Savage, J., R622  
 Savard, G., E555  
 Savolainen, J., R897  
 Sawada, T., R740  
 Sawin, L. L., R1017  
 Sayeed, M. M., R470, R673  
 Schadt, J. C., R559  
 Schaefer, C. F., H181  
 Schafer, J. A., F813  
 Scharschmidt, B. F., G232  
 Scheide, J. I., C519, R27

Schelling, M.E., H1211  
 Schieppati, A., C839  
 Schiereck, P., C491  
 Schiffirn, E.L., H1027, F51  
 Schild, L., F554  
 Schildmeyer, L. A., C235  
 Schjoldager, B., G294  
 Schlag, G., H833  
 Schlendorff, D., F202  
 Schlossmacher, B., G8  
 Schlotterbeck, J., C323  
 Schmalz, P. F., G294  
 Schmid, P.G., H1172  
 Schmid, R., E756  
 Schmitt, C. A., C323  
 Schneegerber, E. E., C432  
 Schneider, E. G., E243  
 Schnitzer, J. E., H425  
 Schoenfeld, D., E658  
 Schoumacher, R. A., C505  
 Schoutens, B., H1091  
 Schramm, L. P., R655  
 Schreiber, J., R641  
 Schreiner, G. F., F879  
 Schrier, R.W., C839, F254, F267, F425  
 Schröck, H., H250  
 Schubert, M. L., G20  
 Schulz, M., E237  
 Schusdziarra, V., E756  
 Schwab, T. R., R56, R453  
 Schwartz, J. H., F391  
 Schwartz, N. B., E595  
 Schwartz, N. S., E713  
 Schwartz, R. S., R90  
 Schwarz, S. M., G687  
 Schwiep, F., H622  
 Scoggins, B. A., E566, E799, H811  
 Sears, T. S., E265  
 Sebokova, E., E708  
 Seeler, B. J., E775  
 Seetharam, B., G913  
 Segel, L.D., H1105  
 Seidel, C. L., C235  
 Seifter, J. L., C267  
 Seino, M., F521  
 Sellers, T. L., R572  
 Selvaggio, A. M., F391  
 Seo, Y., G575, G781  
 Seri, I., F196  
 Serio, R., G107  
 Service, F. J., E767  
 Seassler, F. M., F432  
 Sevy, N., G808  
 Sexton, W. L., H274  
 Shah, S. D., E52, E713, E795  
 Shah, S. V., F337  
 Shakes, D. C., R228  
 Shammas, R. A., R1025  
 Shanahan, F., G40  
 Shanley, P. F., F425  
 Shapira, J., F358  
 Shapiro, E. T., E349  
 Shargill, N. S., E720  
 Sharp, G. W. G., E167, G543, G586  
 Sharratt, M., C661  
 Shaw, M. J., G294  
 Shaw, S. R., R78  
 Sheikh, M. I., F628  
 Shelat, H., C441  
 Shepherd, A.P., H1187  
 Shepherd, R. E., H265  
 Sheridan, N.P., C781

Sherman, D., R40  
 Shiells, E. A., F588  
 Shiota, M., E482  
 Shiraki, K., R235, R977  
 Showalter, C. J., R453  
 Shrago, E., E181  
 Shrier, A., H1  
 Shryock, J. C., H223  
 Shuler, F., C304  
 Shulman, M., G300  
 Sibbald, J. R., R711  
 Sicinski, R. R., E402  
 Siegel, R. M., R443  
 Siegle, M.-L., G552  
 Sievert, C. E., Jr., G361  
 Sigurdson, S. L., R960  
 Siker, D., R212  
 Silbiger, J., E799  
 Silva, J. E., E323  
 Silver, R. B., R944  
 Silvis, S. E., G361  
 Simasko, S. M., E328  
 Simchon, S., H1167  
 Simchowitz, L., C150, C526  
 Simmons, R. E., E419, F593  
 Simon, F. R., G861  
 Simonson, D. C., E201  
 Simpson, D. P., F863  
 Singer, M. V., G436  
 Singh, P., G217  
 Sinha, M. K., E394  
 Sjöquist, M., F492  
 Sjöstrand, B. M., E775  
 Sjöstrand, F. S., E775  
 Skoog, K. M., H963  
 Skovgaard, L. T., G602  
 Slaaf, D.W., H1059  
 Slattery, K. A., G339  
 Smadjia, C., E407  
 Smith, C.H., C773  
 Smith, C. M., E402  
 Smith, D., C661  
 Smith, G. P., R853  
 Smith, L., C200  
 Smith, T. F., C20  
 Smith, T.W., H1133  
 Smolich, J. J., H361  
 Smolik, M. J., H181  
 Snape, W. J., Jr., G680, G808  
 Snapper, J. R., R310  
 Sod-Moriah, U. A., E84  
 Söling, H. D., G130  
 Soll, A. H., G40, G829  
 Sollott, S., F345  
 Somlyo, A. P., C614  
 Song-Mize, E., R84  
 Sonne, B., E248  
 Sonnenberg, H., R809  
 Sonnenblick, E. H., H344  
 Soper, B. D., G378  
 Soro, A., F895  
 Sowers, J. R., R320  
 Sozzi, S., E237  
 Spaan, J. A. E., H636  
 Spät, A., C744  
 Spector, A. A., C37  
 Spennett, T., E181  
 Spielman, W. S., F907  
 Spiteri, C., R607  
 Spitzer, J. J., E16, E193  
 Spratt, D. I., E652, E658  
 Spray, D.C., C829, H1206  
 Spry, L. A., F145  
 Stafford, J., G416  
 Stanton, B. A., F80

Stanton, R. C., C267  
 Stanton, T. H., C200  
 Starnes, J. W., H599  
 Staroukine, M., F277  
 Stassen, F. L., F165  
 Stassen, H. G., H636  
 Staten, M. A., E537  
 Staub, J. F., R134  
 Stauffacher, W., E694  
 Steele, T. H., F533  
 Steers, W. D., R989  
 Steiner, L., G856  
 Steiner, M., C404  
 Steingold, K. A., E79  
 Stephens, G. C., R485  
 Stephens, R. L., G639  
 Stephenson, L. W., C258  
 Stephenson, R. B., R1025  
 Stephenson, R. L., C383, F657  
 Stern, J. S., R457, R648, R908  
 Stern, P. H., E402  
 Sternlicht, E., E633  
 Sterzel, R. B., F787  
 Stesin, M., E767  
 Stevens, M. H., G723  
 Stinson-Fisher, C. A., C634  
 St Louis, J., H1027  
 Stock, M. J., E162  
 Stockard, C. R., E749  
 Stockert, R.J., C829  
 Stogsdill, P., G339  
 Stone, K., E231  
 Strack, T., E237  
 Strevey, J., F329  
 Strieelman, P., E181  
 Stuenkel, E. L., G242, G925  
 Stuess, S. L., H313  
 Subramanian, H. V., C258  
 Suchy, F. J., G870  
 Suga, H., H34, H292, H894, R933  
 Sugano, K., G87  
 Sugarman, A., F385  
 Sugawara, M., R863  
 Suki, W. N., F45  
 Sumimoto, K., C45  
 Summers, R. W., G741  
 Sunagawa, K., H658  
 Sung, C. K., G242  
 Supiano, M. A., E222  
 Sussman, I., E272  
 Suter, D. E., E595  
 Sutherland, E., G761  
 Sutherland, J., G761  
 Sutliff, V. E., G151, G789  
 Sutton, R., R607  
 Suvannapura, A., G135  
 Suzuki, M., E476  
 Svensson, H., G471  
 Swain, J. L., C318  
 Sweiry, J.H., C735  
 Swerdlow, R. S., E84  
 Swyngedauw, B., H517  
 Sylvia, A. L., H719  
 Szego, C. M., E775  
 Szénási, G., F32  
 Sztorc, D., F15  
 Szurszewski, J., G294  
 Szymonowicz, W., H52

Taboada, J., R102  
 Taché, Y., G637, G639  
 Tajima, F., R977  
 Takács, L., F32  
 Takagi, S., E468

AUTHOR INDEX TO VOLUME 254

Takahashi, T., G819  
 Takala, T. E. S., R897  
 Takeda, K., F254  
 Takenaga, T., G814  
 Tan, W., R424  
 Tanaka, N., H34, H292, R933  
 Tanaka, T., E685  
 Tanaka, Y., E402  
 Tang, Y.-L., H156  
 Tangieder, G.J., H1059  
 Taniguchi, J., F232  
 Tappy, L., E201  
 Targett, R. C., H609  
 Taskinen, M.-R., E175  
 Taylor, A. E., H702  
 Taylor, C. M., E260  
 Taylor, I. L., G723, G829  
 Taylor, R. E., Jr., E243  
 Taylor, R. F., R655  
 Tepperman, B. L., G142, G378  
 Thames, M. D., R320  
 Thams, P., E454  
 Thaxter, S., G334  
 Thibault, G., F51  
 Thijss, L. G., E45  
 Thirkill, C. E., E459  
 Thirlby, R. C., G723  
 Thomas, D. P., H340  
 Thomasset, M., E505  
 Thompson, J. C., E513, G217  
 Thompson, J. F., G429  
 Thompson, S. B., H473  
 Thomson, J., C661  
 Thomson, J. M., R348  
 Thomson, R. B., R348  
 Thorn, C. E., G142, G378  
 Thornby, J. I., H102  
 Thornton, R. M., H11  
 Thrivikraman, K. V., R289, R296  
 Till, G. O., H258  
 Tillil, H., E349  
 Timmis, A. D., H148  
 Tipton, C. M., H592  
 Toback, F. G., F747  
 Tomlanovich, S. J., F562  
 Tomoike, H., H1081  
 Tomomasa, T., G680  
 Tomomatsu, E., R192  
 Tonolo, G., F895  
 Toomey, M., G40  
 Toorop, G. P., H279  
 Tordoff, M. G., R150, R969  
 Tornheim, K., E272  
 Toulli, J., G671  
 Towrie, A., F697  
 Traber, D. L., H833, R567  
 Traber, L. D., H833, R567  
 Tracqui, P., R134  
 Trapani, A. J., R338  
 Trayhurn, P., R11  
 Trayzman, R. J., H156, H742  
 Trechsel, U., E260  
 Trindade, C., E579  
 Trippodo, N. C., R185  
 Trischitta, V., E39  
 Trizna, W., F178  
 Tronier, B., E248  
 Trudeau, F., R663  
 Trzeciakowski, J. P., H709  
 Tsuda, T., R518  
 Tsujioka, K., H1010  
 Tucker, V. L., H317  
 Turk, J., E121  
 Turner, C. S., R706  
 Turner, R. J., C391  
 Tuttle, K. R., E713  
 Twente, S., E358  
 Ubiali, A., H1218  
 Uemura, N., F540  
 Uenishi, M., H34, H292, R933  
 Ulfendahl, H. R., F492  
 Ullrich, K. J., F453  
 Ulrich-Baker, M. G., G408  
 Undesser, K. P., R338  
 Unthank, J. L., G389  
 Urban, R. J., E113  
 Utsumon'iya, J., G819  
 Väänänen, K., R897  
 Vaandrager, A. B., C115  
 Vaccarezza, S. G., G329  
 Vailas, A. C., R78  
 Valenzuela, J. E., G8  
 Vallega, G., C751  
 Van Assche, F. A., E496, E505  
 Van Cauter, E., E113, E786  
 Van den Bos, G. C., E45  
 Van den Horn, G. J., H279  
 Vanderhoof, J. A., G373  
 Van der Hyde, H., C397  
 Van der Linden, L.P., H1113  
 Van der Meer, R., G644  
 Van der Velde, E.T., H1113  
 Van der Zee, H., H324  
 Van de Stolpe, A., F477  
 Van-Deventer, G., G201  
 Van Driesche, W., C816  
 Van Driesche, W., C165  
 Van Dyke, R. W., G232  
 Van Lambalgen, A. A., E45  
 Van Orden, D. E., F634  
 Van Putten, V.J., C839  
 Van Renterghem, R. J., H795  
 Vanreterghem, Y. F. Ch., F463  
 Van Steenhoven, A. A., H795  
 Vantrimpont, P. J., H817  
 Varille, V. A., F634  
 Varner, K. J., R249, R257  
 Vayasse, N., G25  
 Veale, W. L., R513  
 Veenstra, R. D., H170  
 Veith, R. C., R90  
 Veldhuis, J. D., E113  
 Veldkamp, P. J., F440  
 Vennes, J. A., G361  
 Ventura-Clapier, R., H517  
 Venuto, R. C., E687  
 Verberckmoes, R. K. A., F463  
 Verburg, J., G168  
 Veres, A. T., R809  
 Verhaeghe, J., E496, E505  
 Verkman, A. S., F114  
 Vermillion, D. L., G124  
 Verniory, A., F277  
 Viganò, G., H1218  
 Vihko, V., R897  
 Vilaró, S., G711  
 Vilstrup, H., G602  
 Vinciguerra, T., H1034  
 Vink, A., E214  
 Vink, R., R785  
 Visser, W. J., E496  
 Voelker, K., E579  
 Vokes, T. J., R641  
 Vollmer, R. R., R95  
 Volpe, P., C459  
 Vonk, R. J., G644  
 von Ritter, C., G275  
 Vos, P., G224  
 Vu, B., C235  
 Wada, Y., H1010  
 Wade, P. R., G522  
 Wadhwa, S. S., G366  
 Wadhwa, K. C., C141  
 Waerber, B., H509  
 Wagner, C. W., R102  
 Wagner, O. F., R885  
 Walch, O., R170  
 Walker, A. M., H52  
 Walker, B. R., R552  
 Walker, P. M., H578  
 Walker, R. L., H558  
 Wallace, A., R1  
 Wallace, C., C235  
 Wallace, J. L., G117  
 Wallace, J. R., H89  
 Wallick, D. W., H313  
 Wallmark, B., G33, G399  
 Walsh, J. H., G201, G723  
 Walsh, K. P., R607  
 Walsh-Reitz, M. M., F747  
 Wang, B. C., R161, R204  
 Wang, P., G408  
 Wang, Y., F739  
 Wasser, J. S., R944  
 Wasserman, D. H., E518  
 Wasserman, S. I., C53  
 Wasserstrom, J.A., H1157  
 Watanabe, N., H417  
 Watanabe, S., G837  
 Watanabe, T., R633  
 Watari, H., G575, G781  
 Watkins, D., H801  
 Weber, F. L., Jr., G264  
 Weber, P. C., F87  
 Wei, H. M., H1004  
 Weiland, G. A., E328, G586  
 Weinberg, J. M., F311  
 Weiner, H., G639  
 Weiner, M. W., F401  
 Weingart, R., C226  
 Weinstein, A. M., F297  
 Weisbrod, R. M., H871  
 Weiss, J. L., H547  
 Weiss, N. M., R641  
 Weissberg, P. L., H361  
 Welbourne, T. C., F134  
 Wellstein, A., H199  
 Wendelaar Bonga, S. E., R891  
 Westerhof, N., H279  
 Westfall, M. V., R470, R673  
 Westfall, T. C., H879, H993  
 Westphale, H.-J., F608  
 Weyer, P., C450  
 White, M. F., E429  
 White, V., C235  
 Whitener, C. J., E265  
 Wible, J. H., Jr., R680  
 Wicks, J., G586  
 Wideman, R. F., Jr., R925  
 Wienen, W., H785  
 Wieringa, P. A., H636  
 Wilfong, N., F582, F900  
 Wilhelm, A. J., C491  
 Wilkening, R. B., R585  
 Wilkes, B. M., E681, F345, F668  
 Williams, G. H., R1001  
 Williams, J. A., G130, G242, G513, G925  
 Williams, J. C. Jr., F813  
 Williams, J. K., H126, H286  
 Williams, J. P., G748  
 Williams, P. E., E518, E588  
 Williams, T. D. M., R607  
 Williams, T. K., G768  
 Willshaw, P., H664  
 Wilson, C. B., F500  
 Wilson, D. A., H742  
 Wilson, J. R., H727  
 Wilson, M. F., H181  
 Winaver, J., R776  
 Winder, W. W., R572  
 Windhager, E. E., F240  
 Winn, H. R., H133  
 Winter, C. G., G630  
 Wisenbaugh, T., H1099  
 Witkowski, F. X., H804  
 Wojta, J., R285  
 Woldegiorgis, G., E181  
 Wolf, B. A., E121  
 Wolfe, R. R., E526, E532  
 Wolgast, M., F364  
 Wolkoff, A. W., C829  
 Womack, W., G275  
 Won, S. J., R499  
 Wondergem, R., G795  
 Wong, P. Y. D., F121  
 Wong, S. M. E., F374  
 Wong, T. T., G355  
 Wood, C. E., E799  
 Wood, J. D., G522  
 Woods, W. T., Jr., C397  
 Woodson, L., R567  
 Woolf, P. D., E287  
 Wotiz, H. H., H468  
 Wray, S., C213  
 Wright, C., E337  
 Wright, R. D., E566  
 Wu, S. Y., E337  
 Wurster, R. D., H187  
 Yagi, S., R192  
 Yagil, C., E601, C822  
 Yamada, A., H1081  
 Yamada, K., E92  
 Yamada, T., G87  
 Yamaguchi, H., C423  
 Yamaguchi, N., R659  
 Yamamoto, K., G814  
 Yamamoto, S., E685  
 Yamamura, T., G819  
 Yamauchi, A., E685  
 Yamauchi, H., R357  
 Yamazaki, T., H1074  
 Yang, H. T., R572  
 Yang, P., G194  
 Yasumura, Y., H34, H292, H894, R933  
 Yatani, A., H140, H443, H1200, H1224  
 Yeh, L.-F., R33  
 Yip, C., R809  
 Yki-Järvinen, H., E175  
 Ylikahri, R., E175  
 Yonekura, S., H417  
 York, D. A., E162  
 Yoshida, S., H855  
 Yoshida, T., R821  
 Yoshida, Y., R192  
 Yoshimasa, Y., E92  
 Yoshinaga, K., F521  
 Yoshino, H., R595  
 Yoshitomi, K., F232, F323

AUTHOR INDEX TO VOLUME 254

Youmans, E. M., H592	Yugari, Y., G424	Zawalich, W. S., E609	Zhang, H., H344
Youn, J. H., E720	Yukimura, T., G814	Zech, L. A., E222	Zhou, Z.-C., G789
Young, A. A., E231	Yusufi, A. N. K., F512	Zeitlin, P. L., C691	Zhu, W.-X., H102
Young, D. A., E537	Zadunaisky, J. A., C519, R27	Zelis, R., E760	Zimmerman, B. J., H702
Young, D. B., F704	Zager, R. A., F574	Zeman, R. J., E726	Zimmerman, R. S., R56, R453
Yousef, L. W., C669	Zawalich, K. C., E609	Zeniya, M., G346	Zmeili, S. M., E99
Yu, V. Y. H., H52		Zenser, T. V., F145	Zernicke, R. F., R78
Yudilevich, D.L., C735		Zucker, I. H., R424	



## **Contents of Volume 254** **American Journal of Physiology**

**American Journal of Physiology:**  
**Cell Physiology**

**American Journal of Physiology:**  
**Endocrinology and Metabolism**

**American Journal of Physiology:**  
**Gastrointestinal and Liver Physiology**

**American Journal of Physiology:**  
**Heart and Circulatory Physiology**

**American Journal of Physiology:**  
**Regulatory, Integrative and Comparative Physiology**

**American Journal of Physiology:**  
**Renal, Fluid and Electrolyte Physiology**

# American Journal of Physiology: Cell Physiology

No. 1. JANUARY 1988

## INVITED REVIEW

Quantitative determination of  $\text{Na}^+ \text{-K}^+$ -ATPase and other sarcolemmal components in muscle cells

O. Hansen and T. Clausen

C1

Cultured bovine coronary arterial endothelial cells synthesize HETEs and prostacyclin

G. E. Revtyak, A. R. Johnson, and W. B. Campbell

C8

Ion transport mediated by copolymers composed of polyoxyethylene and polyoxypropylene

T. P. Atkinson, J. O. Bullock, T. F. Smith, R. E. Mullins, and R. L. Hunter

C20

[ATP]<sub>i</sub> in *Limulus* photoreceptors: no correlation with responsiveness or discrete event rate

L. J. Rubin and J. E. Brown

C27

Eicosanoid metabolism in cerebromicrovascular endothelium

S. A. Moore, A. A. Spector, and M. N. Hart

C37

Characterization of [<sup>3</sup>H]nifedipine binding to intact vascular smooth muscle cells

K. Sumimoto, M. Hirata, and H. Kuriyama

C45

Immune-related intestinal Cl<sup>-</sup> secretion. I. Effect of histamine on the T<sub>84</sub> cell line

S. I. Wasserman, K. E. Barrett, P. A. Huott, G. Beuerlein,

M. F. Kagnoff, and K. Dharmashathaphorn

C53

Intercellular communication between ciliated cells in culture

M. J. Sanderson, I. Chow, and E. R. Dirksen

C63

Ca dependence of Na influx during treatment of rabbit aorta with NE and high K solutions

P. I. Aaronson and A. W. Jones

C75

cAMP stimulates the  $\text{Na}^+ \text{-K}^+$  pump in frog retinal pigment epithelium

B. A. Hughes, S. S. Miller, D. P. Joseph, and J. L. Edelman

C84

Cross-bridge phosphorylation and regulation of latch state in smooth muscle

C.-M. Hai and R. A. Murphy

C99

Contractile activation and recovery in skinned frog muscle stimulated by ionic substitution

M. D. Fill and P. M. Best

C107

Cyclic nucleotide-dependent protein kinase inhibition by H-8: effects on ion transport

S. M. O'Grady, H. R. DeJonge, A. B. Vaandrager, and M. Field

C115

Phenamil, an amiloride analogue, inhibits differentiation of Friend murine erythroleukemic cells

D. A. Lannigan, J. B. Bennington, E. J. Cragoe, Jr., and P. A. Knauf

C122

Intracellular Ca regulation during secretagogue stimulation of the parietal cell

P. A. Negulescu and T. E. Machen

C130

Calcium diffusion through perineurium of frog sciatic nerve

K. C. Wadhani, H. Levitan, and S. I. Rapoport

C141

$\text{Na}^+ \text{-Ca}^{2+}$  exchange in human neutrophils

L. Simchowitz and E. J. Cragoe, Jr.

C150

Osmotically induced basolateral K<sup>+</sup> conductance in turtle colon: lidocaine-induced K<sup>+</sup> channel noise

D. C. Dawson, W. Van Driessche, and S. I. Helman

C165

$\beta$ -Adrenergic stimulation of brown adipocyte proliferation

A. Géloën, A. J. Collet, G. Guay, and L. J. Bukowiecki

C175

Phorbol esters inhibit adenylate cyclase activity in cultured collecting tubular cells

B. S. Dixon, R. Breckon, C. Burke, and R. J. Anderson

C183

## SPECIAL COMMUNICATIONS

A simple method for continuous measurement of the volume of cells in suspension  
*J. D. Blumenfeld, S. R. Gullans, and S. C. Hebert* C192

A microelectrometric titration method for measurement of total intracellular  $\text{Cl}^-$  concentration  
*K. Bomsztyk, M. B. Calab, L. Smith, and T. H. Stanton* C200

---

## RAPID COMMUNICATIONS

Protein kinase activator 1-oleoyl-2-acetyl-sn-glycerol inhibits two types of calcium currents in  $\text{GH}_3$  cells  
*C. Marchetti and A. M. Brown* C206

---

## ANNOUNCEMENTS

C211

No. 2. FEBRUARY 1988

## INVITED REVIEW

Smooth muscle intracellular pH: measurement, regulation, and function  
*S. Wray* C213

---

Electrical properties of the gap junctional membrane studied in rat liver cell pairs  
*E. C. Reverdin and R. Weingart* C226

Effect of seeding density and time in culture on vascular smooth muscle cell proteins  
*C. L. Seidel, V. White, C. Wallace, J. Amann, D. Dennison, L. A. Schildmeyer, B. Vu, J. C. Allen, L. Navarro, and S. Eskin* C235

Asymmetry of  $\text{Na}-\text{K}-\text{Cl}$  cotransport in human erythrocytes  
*G. R. Kracke, M. A. Anatra, and P. B. Dunham* C243

Aminoglycoside-induced alterations in apical membranes of kidney epithelial cell line (LLC-PK<sub>1</sub>)  
*K.-I. Inui, H. Saito, T. Iwata, and R. Hori* C251

In vivo  $^{31}\text{P}$ -NMR spectroscopy of chronically stimulated canine skeletal muscle  
*B. J. Clark III, M. A. Acker, K. McCully, H. V. Subramanian, R. L. Hammond, S. Salmons, B. Chance, and L. W. Stephenson* C258

Epidermal growth factor rapidly activates the hexose monophosphate shunt in kidney cells  
*R. C. Stanton and J. L. Seifert* C267

Assessment of  $\text{Na}^+ - \text{H}^+$  exchange activity in phagosomal membranes of human neutrophils  
*S. Grinstein and W. Furuya* C272

Volume response of quiescent and interleukin 2-stimulated T-lymphocytes to hypotonicity  
*S. C. Lee, M. B. Prystowsky, and C. Deutsch* C286

Complex response of epithelial cells to inhibition of  $\text{Na}^+$  transport by amiloride  
*R. S. Fisher and J. W. Lockard* C297

Prostaglandin E<sub>2</sub> is an inhibitor of adenylate cyclase in rabbit proximal tubule  
*J. H. Dominguez, F. Shuler, M. W. Olszowy, T. Brown, and J. B. Puschett* C304

Relationship between quin2-determined cytosolic  $[\text{Ca}^{2+}]$  and sweat secretion  
*K. Sato and F. Sato* C310

Tumor-promoting phorbol esters induce angiogenesis in vivo  
*P. B. Morris, T. Hida, P. J. Blackshear, G. K. Klintworth, and J. L. Swain* C318

Thyroid hormone coordinately regulates  $\text{Na}^+ - \text{K}^+$ -ATPase  $\alpha$ - and  $\beta$ -subunit mRNA levels in kidney  
*A. A. McDonough, T. A. Brown, B. Horowitz, R. Chiu, J. Schlotterbeck, J. Bowen, and C. A. Schmitt* C323

Depression of membrane-bound  $\text{Na}^+ \text{-K}^+$ -ATPase activity induced by free radicals and by ischemia of kidney

*K. Kako, M. Kato, T. Matsuoka, and A. Mustapha*

C330

---

#### SPECIAL COMMUNICATIONS

High-pressure pulsation of central and microvessel pulmonary artery endothelial cells

*M. Rabinovitch, T. Bothwell, M. Mullen, and B. N. Hayakawa*

C338

No. 3. MARCH 1988

#### INVITED REVIEW

Molecular events in synaptogenesis: nerve-muscle adhesion and postsynaptic differentiation

*R. J. Bloch and D. W. Pumplin*

C345

---

Interaction of theophylline, verapamil, and diltiazem on hamster diaphragm muscle force in vitro

*S. A. Esau*

C365

Purification of PRL receptors from toad kidney: comparisons with rabbit mammary PRL receptors

*M. Dunand, J.-P. Kraehenbuhl, B. C. Rossier, and M. L. Aubert*

C372

Bicarbonate secretion in rat distal colon in vitro: a measurement technique

*G. M. Feldman, S. F. Bermon, and R. L. Stephenson*

C383

$\text{Cl}^- \text{-HCO}_3^-$  exchange is present with  $\text{Na}^+ \text{-K}^+ \text{-Cl}^-$  cotransport in rabbit parotid acinar basolateral membranes

*R. J. Turner and J. N. George*

C391

$\text{Ca}^{2+}$  inhibits outward current through single  $\text{K}^+$  channels in canine atrial myocyte sarcolemma

*J. K. Bubien, Henri van der Hyde, and W. T. Woods, Jr.*

C397

Renal tubular vasopressin receptors downregulated by dehydration

*M. Steiner and M. I. Phillips*

C404

Receptors for and effects of insulin and IGF-I in rat glomerular mesangial cells

*H. J. Arnqvist, B. J. Ballermann, and G. L. King*

C411

Spatial heterogeneity of metabolism in skeletal muscle in vivo studied by  $^{31}\text{P}$ -NMR spectroscopy

*R. A. J. Challiss, M. J. Blackledge, and G. K. Radda*

C417

$\beta$ -Adrenergic actions on membrane electrical properties of dissociated smooth muscle cells

*H. Yamaguchi, T. W. Honeyman, and F. S. Fay*

C423

Modulation of tight junction formation in clone 4 MDCK cells by fatty acid supplementation

*E. E. Schneeberger, R. D. Lynch, C. A. Kelly, and C. A. Rabito*

C432

$\text{Na}^+ \text{-Ca}^{2+}$  exchange in sarcolemmal vesicles from bovine superior mesenteric artery

*A. M. Kahn, J. C. Allen, and H. Shelat*

C441

Lectin-gold labeling of glycoconjugates in normal and Brattleboro rat papilla: effect of vasopressin

*P. Weyer, D. Brown, and L. Orci*

C450

$\text{Ca}^{2+}$  release from sarcoplasmic reticulum of skinned fast- and slow-twitch muscle fibers

*G. Salviati and P. Volpe*

C459

---

#### SPECIAL COMMUNICATIONS

Dynamic NMR measurement of volume regulatory changes in *Amphiuma* RBC  $\text{Na}^+$  content

*S. E. Anderson, J. S. Adorante, and P. M. Cala*

C466

**No. 4. APRIL 1988**

Role of sodium pump in membrane potential gradient of canine proximal colon <i>E. P. Burke, J. B. Reed, and K. M. Sanders</i>	C475
Na <sup>+</sup> uptake into colonic enterocyte membrane vesicles <i>R. J. Bridges, H. Garty, D. J. Benos, and W. Rummel</i>	C484
Caffeine suppresses length dependency of Ca <sup>2+</sup> sensitivity of skinned striated muscle <i>E. L. de Beer, R. L. F. Gründeman, A. J. Wilhelm, C. J. Caljouw, D. Klepper, and P. Schiereck</i>	C491
Release and reloading of intracellular Ca stores after cholinergic stimulation of the parietal cell <i>P. A. Negulescu and T. E. Machen</i>	C498
Apical membrane chloride channels in a colonic cell line activated by secretory agonists <i>D. R. Halm, G. R. Rechkemmer, R. A. Schoumacher, and R. A. Frizzell</i>	C505
Sodium channels in membrane vesicles from cultured toad bladder cells <i>C. Asher, A. Moran, B. C. Rossier, and H. Garty</i>	C512
Effect of a chloride channel blocker on bullfrog corneal epithelium <i>J. I. Scheide and J. A. Zadunaisky</i>	C519
Lithium movements in resting and chemotactic factor-activated human neutrophils <i>L. Simchowitz</i>	C526
Comparison of ion transport by cultured secretory and absorptive canine airway epithelia <i>R. C. Boucher and E. H. Larsen</i>	C535
A linear model of muscle respiration explains monoexponential phosphocreatine changes <i>R. A. Meyer</i>	C548
Rabbit synoviocyte inositol phospholipid metabolism is stimulated by hydroxyapatite crystals <i>R. J. Rothenberg and H. Cheung</i>	C554
Effect of fasting on myocardial substrates in male and female rats <i>D. A. Arnall, W. K. Palmer, W. C. Miller, and L. B. Oscai</i>	C560
A bioenergetic model of gossypol action: effects of gossypol on adult rat spermatogenic cells <i>J. Reyes, L. Borriero, and D. J. Benos</i>	C564
Specificity of gossypol uncoupling: a comparative study of liver and spermatogenic cells <i>J. Reyes and D. J. Benos</i>	C571

---

**SPECIAL COMMUNICATIONS**

A simple hydraulic drive for remote control of the Huxley-style micromanipulator <i>J. W. Krueger</i>	C577
--	------

---

**RAPID COMMUNICATIONS**

Vanadate and fluoride effects on Na <sup>+</sup> -K <sup>+</sup> -Cl <sup>-</sup> cotransport in squid giant axon <i>A. A. Altamirano, G. E. Breitwieser, and J. M. Russell</i>	C582
--	------

---

**LETTERS TO THE EDITOR**

Mitochondrial redox state in skeletal muscle cannot be estimated with glutamate dehydrogenase system <i>A. Katz; T. E. Graham</i>	C587
--	------

**No. 5. MAY 1988****BRIEF REVIEW**

On the composition of the cytosol of relaxed skeletal muscle of the frog <i>R. E. Godt and D. W. Maughan</i>	C591
---	------

---

Functional significance of myosin transitions in single fibers of developing soleus muscle <i>P. J. Reiser, C. E. Kasper, M. L. Greaser, and R. L. Moss</i>	C605
--	------

Rat lung type II cell and lamellar body: elemental composition in situ <i>R. G. Eckenhoff and A. P. Somlyo</i>	C614
Kinetics of high-affinity $\text{Ca}^{2+}$ sequestration in permeabilized rat pancreatic acini <i>T. W. Hurley</i>	C621
Influx and efflux of 3-O-methyl-D-glucose by cultured human fibroblasts <i>N. Longo, L. D. Griffin, and L. J. Elsa</i>	C628
Effects of experimentally induced nephrosis on protein synthesis in rat liver <i>A. E. Lewandowski, W. S. L. Liao, C. A. Stinson-Fisher, J. D. Kent, and L. S. Jefferson</i>	C634
Potassium-induced cell swelling in <i>Necturus</i> gallbladder epithelium <i>C. W. Davis and A. L. Finn</i>	C643
$\alpha$ -Actin and cytochrome c mRNAs in atrophied adult rat skeletal muscle <i>P. Babij and F. W. Booth</i>	C651
Clenbuterol prevents or inhibits loss of specific mRNAs in atrophying rat skeletal muscle <i>P. Babij and F. W. Booth</i>	C657
Oxidative potential in developing rat diaphragm, EDL, and soleus muscle fibers <i>D. Smith, H. Green, J. Thomson, and M. Sharratt</i>	C661
Osmotic stability of red cells in renal circulation requires rapid urea transport <i>R. I. Macey and L. W. Yousef</i>	C669
Electrical activity in chromaffin cells of intact mouse adrenal gland <i>V. Nassar-Gentina, H. B. Pollard, and E. Rojas</i>	C675
Alterations in type II pneumocytes cultured after partial pneumonectomy <i>S. R. Rannels and D. E. Rannels</i>	C684
Ion transport in cultured fetal and adult rabbit tracheal epithelia <i>P. L. Zeitlin, G. M. Loughlin, and W. B. Guggino</i>	C691
Correlated in vivo $^{31}\text{P}$ -NMR and NADH fluorometric studies on gerbil brain in graded hypoxia and hyperoxia <i>L. Gyulai, B. Chance, L. Ligeti, G. McDonald, and J. Cone</i>	C699
Hyperosmotic inhibition of calcium signals and exocytosis in rabbit neutrophils <i>C. J. Kazilek, C. J. Merkle, and D. E. Chandler</i>	C709

---

#### RAPID COMMUNICATIONS

Rectum has abnormal ion transport but normal cAMP-binding proteins in cystic fibrosis <i>J. L. Goldstein, N. T. Nash, F. Al-Bazzaz, T. J. Layden, and M. C. Rao</i>	C719
--	------

---

#### ANNOUNCEMENTS

C725

#### No. 6, JUNE 1988

Optical absorbance changes induced by CCK-8 under limited $\text{O}_2$ supply in isolated perfused rat pancreas <i>T. Matsumoto and T. Kanno</i>	C727
Characterization of folate uptake in guinea pig placenta <i>J. H. Sweiry and D. L. Yudilevich</i>	C735
$\text{Na}^+ \text{-H}^+$ and $\text{Na}^+ \text{-Ca}^{2+}$ exchange in glomerulosa cells: possible role in control of aldosterone production <i>L. Hunyady, S. Kayser, E. J. Cragoe, Jr., I. Balla, T. Balla, and A. Späth</i>	C744
Vascular smooth muscle $\text{Na}^+ \text{-H}^+$ exchanger kinetics and its activation by angiotensin II <i>G. A. Vallega, M. L. Canessa, B. C. Berk, T. A. Brock, and R. W. Alexander</i>	C751
Sarcomere length and joint kinematics during torque production in frog hindlimb <i>R. L. Lieber and J. L. Boakes</i>	C759
Muscle force and moment arm contributions to torque production in frog hindlimb <i>R. L. Lieber and J. L. Boakes</i>	C769

Neutral amino acid transport systems of microvillous membrane of human placenta <i>L. W. Johnson and C. H. Smith</i>	C773
Serotonin transport and fluidity in plasma membrane vesicles: effect of hyperoxia <i>N. P. Sheridan and E. R. Block</i>	C781
Osmoregulation by slow changes in aldose reductase and rapid changes in sorbitol flux <i>S. M. Bagnasco, H. R. Murphy, J. J. Bedford, and M. B. Burg</i>	C788
Calcium currents in isolated canine airway smooth muscle cells <i>M. I. Kotlikoff</i>	C793
Characterization of cAMP-induced activation of epithelial sodium channels <i>D. S. Lester, C. Asher, and H. Garty</i>	C802
Human alveolar macrophage arachidonic acid metabolism <i>G. P. Brown, M. M. Monick, and G. W. Hunninghake</i>	C809
Activation of K <sup>+</sup> conductance in basolateral membrane of toad urinary bladder by oxytocin and cAMP <i>W. Van Driessche and D. Eriij</i>	C816
Internalization and catabolism of insulin by an established renal cell line <i>C. Yagil, B. H. Frank, and R. Rabkin</i>	C822
Influence of cytosolic pH on receptor-mediated endocytosis of asialoorosomucoid <i>A. C. Samuelson, R. J. Stockert, A. B. Novikoff, P. M. Novikoff, J. C. Saez, D. C. Spray, and A. W. Wolkoff</i>	C829
Effect of extracellular acidosis on <sup>45</sup> Ca uptake in isolated hypoxic proximal tubules <i>M. Burnier, V. J. Van Putten, A. Schieppati, and R. W. Schrier</i>	C839

---

#### RAPID COMMUNICATIONS

Ouabain-resistant, amiloride-sensitive Na <sup>+</sup> -K <sup>+</sup> pumping activity and morphological changes are inducible <i>J. A. Epstein and C. Lechene</i>	C847
--	------

---

<i>Subject Index to Volume 23</i>	C855
<i>Author Index to Volume 23</i>	C861

## CORRIGENDA

Volume 253, November 1987  
Volume 22, November 1987

*Pages C721-C730:* Shi Liu, Ron Jacob, David Piwnica-Worms, and Melvyn Lieberman. “(Na + K + 2Cl) cotransport in cultured embryonic chick heart cells.” Page C721: first and second sentences, second paragraph, second column, should read “In this study, coupled ion movements are investigated using Na-, K-, and Cl-selective microelectrodes, in contrast to previous work (30), in which we determined the contents of Na, K, and Cl by atomic absorption spectrophotometry (Na<sub>i</sub> and K<sub>i</sub>) or coulometric titration (Cl<sub>i</sub>). We find that Cl-HCO<sub>3</sub> exchange does not appear to contribute to the maintenance of a high a<sub>Cl</sub><sup>i</sup> in the resting steady state.” C722: *Eq. 1* should read

$$a_x^i = 10^{[(V_d - E_o)/S]} - \Sigma K_{xy} (a_y^i)^{z_x/z_y} \quad (1)$$

*Pages C731-C743:* Leslie Anderson Lobaugh and Melvyn Lieberman. “Na-K pump site density and ouabain binding affinity in cultured chick heart cells.” C731: second line of the abstract should read “[<sup>3</sup>H]ouabain bound to a single class of sites in 0.5 mM K (0.5 K<sub>o</sub>) with an association rate constant (k<sub>+1</sub>) of 3.4 × 10<sup>4</sup> M<sup>-1</sup>·s<sup>-1</sup> and a dissociation rate constant (k<sub>-1</sub>) of 0.0095 s<sup>-1</sup>.” Second to last sentence before METHODS should read “We find that ouabain binds to a single class of sites in cultured chick heart cells.” C735: second to last sentence, third paragraph, should read “Using this assumption and data presented in Fig. 3C, we calculated k<sub>+1</sub> = 3.7 × 10<sup>7</sup> M<sup>-1</sup>·h<sup>-1</sup> and k<sub>-1</sub> = 0.11 h<sup>-1</sup>.” C736: fourth and fifth sentences in *Effect of Na<sub>i</sub>* should read “<sup>42</sup>K uptake was approximately linear for 2 min (Fig. 6). Fifty-eight percent of <sup>42</sup>K uptake was ouabain sensitive (Table 3) and is assumed to represent transport by the Na-K pump.” C739: second sentence in *DISCUSSION* should read “Although convincing evidence has been presented for a direct relationship between glycoside binding, consequent Na-K pump inhibition, rise in intracellular Na activity (a<sub>Na</sub><sup>i</sup>) and increase in contractile force in digitalis-sensitive cardiac preparations (16), the results of other studies argue that Na-K pump inhibition is not a prerequisite for glycoside-induced inotropy.” Second to last sentence, first paragraph, second column, should read “Although the existence of a second class of higher affinity binding sites could explain a biphasic dissociation curve, the absence of detectable high affinity binding at equilibrium and the fact that 7% of specifically bound [<sup>3</sup>H]ouabain could not be dissociated under these experimental conditions imply that other explanations are more likely, e.g., underestimation of nonspecific binding, inability to achieve true “infinite dilution” conditions in the absence of perfusion, existence of a pool of irreversibly or slowly releasable ligand.”

# American Journal of Physiology: Endocrinology and Metabolism

No. 1. JANUARY 1988

## INVITED REVIEW

### Physiology and pathophysiology of atrial peptides

K. L. Goetz

E1

---

### Adrenergic blockade does not abolish elevated glucose turnover during bacterial infection

D. M. Hargrove, G. J. Bagby, C. H. Lang, and J. J. Spitzer

E16

### Lowering of plasma glucose in diabetic rats by antilipolytic agents

G. M. Reaven, H. Chang, H. Ho, C.-Y. Jeng, and B. B. Hoffman

E23

### [<sup>3</sup>H]-[Thr<sup>4</sup>,Gly<sup>7</sup>]OT: a highly selective ligand for central and peripheral OT receptors

J. Elands, C. Barberis, and S. Jard

E31

### Evidence of a defect in insulin-receptor recycling in adipocytes from older rats

V. Trischitta and G. M. Reaven

E39

### Regional lactate production in early canine endotoxin shock

A. A. van Lambalgen, H. C. Runge, G. C. van den Bos, and L. G. Thijs

E45

### Delayed extra-adrenal epinephrine secretion after bilateral adrenalectomy in rats

C. Ricordi, S. D. Shah, P. E. Lacy, W. E. Clutter, and P. E. Cryer

E52

### Food restriction modulates $\beta$ -adrenergic-sensitive adenylate cyclase in rat liver during aging

M. S. Katz

E54

### Effect of phorbol myristate acetate on secretion of parathyroid hormone

J. J. Morrissey

E63

### Physiological role of glucocorticoids on rat serum and liver metallothionein in basal and stress conditions

J. Hidalgo, M. Giralt, J. S. Garvey, and A. Armario

E71

### TeBG- and CBG-bound steroid hormones in rabbits are available for influx into uterus in vivo

G. Chaudhuri, K. A. Steingold, W. M. Pardridge, and H. L. Judd

E79

### Dissociating antifertility effects of GnRH-antagonist from its adverse effects on mating behavior in male rats

S. Bhasin, T. Fielder, N. Peacock, U. A. Sod-Moriah, and R. S. Swerdloff

E84

### Change of insulin action with aging in conscious rats determined by euglycemic clamp

H. Nishimura, H. Kuzuya, M. Okamoto, Y. Yoshimasa, K. Yamada, T. Ida, T. Kakehi, and H. Imura

E92

### LH subunit mRNA concentrations during LH surge in ovariectomized estradiol-replaced rats

D. J. Haisenleder, A. L. Barkan, S. Papavasiliou, S. M. Zmeili, C. Dee, M. L. Jameel, G. A. Ortolano, M. R. El-Gewely, and J. C. Marshall

E99

---

## MODELING METHODOLOGY FORUM

### A model of the distribution and metabolism of corticotropin-releasing factor

B. Candas, J. Lalonde, and M. Normand

E104

---

## SPECIAL COMMUNICATIONS

### Comparative assessments of objective peak-detection algorithms. II. Studies in men

R. J. Urban, D. L. Kaiser, E. Van Cauter, M. L. Johnson, and J. D. Veldhuis

E113

## EDITORIAL REVIEW

Regulation of $\text{Ca}^{2+}$ homeostasis by islet endoplasmic reticulum and its role in insulin secretion <i>B. A. Wolf, J. R. Colca, J. Turk, J. Florholmen, and M. L. McDaniel</i>	E121
Relationship of substrate level to turnover rate in fasted adult and newborn dogs <i>S. Hulman, R. Kliegman, J. Heng, and E. Crouser</i>	E137
Angiotensin II causes a dual effect on potassium permeability in adrenal glomerulosa cells <i>M. V. Lobo and E. T. Marusic</i>	E144
Metabolism of 25-hydroxyvitamin D in the copper-laden rat: a model of Wilson's disease <i>T. O. Carpenter, M. L. Pendrak, and C. S. Anast</i>	E150
Cold-induced $\beta$ -adrenergic recruitment of lipoprotein lipase in brown fat is due to increased transcription <i>C. Carneheim, J. Nedergaard, and B. Cannon</i>	E155
Effect of hypophysectomy on energy balance and brown fat activity in obese Zucker rats <i>S. Holt, N. J. Rothwell, M. J. Stock, and D. A. York</i>	E162
Development of the biphasic response to glucose in fetal and neonatal rat pancreas <i>R. L. Hole, M. C. M. Pian-Smith, and G. W. G. Sharp</i>	E167
Acute effects of ethanol and acetate on glucose kinetics in normal subjects <i>H. Yki-Järvinen, V. A. Koivisto, R. Ylikahri, and M.-R. Taskinen</i>	E175
Adaptive changes in individual acyl-CoA esters from hamster BAT during cold acclimation <i>S. Donatello, T. Spennetta, P. Strieelman, G. Woldegiorgis, and E. Shrago</i>	E181
Dissociation between plasma renin and plasma aldosterone induced by dietary glycine hydrochloride <i>T. A. Kotchen, G. P. Guthrie, Jr., L. D. Boucher, J. N. Lorenz, and C. E. Ott</i>	E187
Platelet-activating factor-induced increases in glucose kinetics <i>C. H. Lang, C. Dobrescu, D. M. Hargrove, G. J. Bagby, and J. J. Spitzer</i>	E193
Normalization of carbohydrate-induced thermogenesis by fructose in insulin-resistant states <i>D. C. Simonson, L. Tappy, E. Jequier, J.-P. Felber, and R. A. DeFronzo</i>	E201
Leucine incorporation into mixed skeletal muscle protein in humans <i>K. S. Nair, D. Halliday, and R. C. Griggs</i>	E208
Hepatic extraction of somatostatin in conscious dogs <i>Z. Chap, T. Ishida, R. H. Jones, J. R. Pena, A. Vinik, and J. B. Field</i>	E214
Effect of sodium-restricted diet and posture on norepinephrine kinetics in humans <i>O. A. Linares, L. A. Zech, J. A. Jacquez, S. G. Rosen, J. A. Sanfield, L. A. Morrow, M. A. Supiano, and J. B. Halter</i>	E222
Insulin response of components of whole-body and muscle carbohydrate metabolism in humans <i>A. A. Young, C. Bogardus, K. Stone, and D. M. Mott</i>	E231
Compliance in microcomputer-assisted conventional insulin therapy: computer simulation study results <i>S. Sozzi, T. Strack, M. Schulz, and A. M. Albisser</i>	E237

Dissociation of osmotic and ionic modulation of aldosterone secretion <i>R. E. Taylor, Jr., K. J. Radke, R. E. Kramer, and E. G. Schneider</i>	E243
Effect of physical exercise on sensitivity and responsiveness to insulin in humans <i>K. J. Mikines, B. Sonne, P. A. Farrell, B. Tronier, and H. Galbo</i>	E248
Parathyroid hormone-independent regulation of $1,25(\text{OH})_2\text{D}$ in response to inhibition of bone resorption <i>J.-P. Bonjour, U. Trechsel, C. M. Taylor, and H. Fleisch</i>	E260

Epinephrine-induced renin secretion is not initiated by cardiac adrenoceptors <i>M. D. Johnson, C. J. Whitener, and T. S. Sears</i>	E265
Effects of hypoglycemia and diabetes on fuel metabolism by rat brain microvessels <i>A. L. McCall, I. Sussman, K. Tornheim, R. Cordero, and N. B. Ruderman</i>	E272
Opposite effects of 1,25(OH) <sub>2</sub> D <sub>3</sub> on synthesis and release of PTH compared with secretory protein I <i>R. D. Ridgeway and R. R. MacGregor</i>	E279
Free and total catecholamines in critical illness <i>P. D. Woolf, R. W. Hamill, L. A. Lee, and J. V. McDonald</i>	E287
Effects of diabetes and starvation on skeletal muscle branched-chain $\alpha$ -keto acid dehydrogenase activity <i>R. P. Aftring, W. J. Miller, and M. G. Buse</i>	E292
ANF and exocrine pancreas: ultrastructural autoradiographic localization in acinar cells <i>J.-G. Chabot, G. Morel, M. Belles-Isles, L. Jeandel, and S. Heisler</i>	E301
Comparison of [ <sup>14</sup> C]glucose and [ <sup>14</sup> C]deoxyglucose as tracers of brain glucose use <i>R. A. Hawkins, A. M. Mans, D. W. Davis, and M. R. DeJoseph</i>	E310
Disappearance of growth hormone from plasma of fetal and newborn sheep <i>G. G. Power, K. T. Ball, and P. D. Gluckman</i>	E318
Phorbol esters, protein kinase C, and thyroxine 5'-deiodinase in brown adipocytes <i>R. M. Barge, I. Mills, J. E. Silva, and P. R. Larsen</i>	E323
Pharmacological characterization of two calcium currents in GH <sub>3</sub> cells <i>S. M. Simasko, G. A. Weiland, and R. E. Oswald</i>	E328
Ontogeny of thyroid hormone effect on tissue 5'-monodeiodinase activity in fetal sheep <i>D. H. Polk, S. Y. Wu, C. Wright, A. L. Reviczky, and D. A. Fisher</i>	E337
Increased in vivo glucose utilization in 30-day-old obese Zucker rat: role of white adipose tissue <i>S. Krief, R. Bazin, F. Dupuy, and M. Lavau</i>	E342
Dose-dependent effects of oral and intravenous glucose on insulin secretion and clearance in normal humans <i>H. Tillil, E. T. Shapiro, M. A. Miller, T. Garrison, B. H. Frank, J. A. Galloway, A. H. Rubenstein, and K. S. Polonsky</i>	E349
Evidence that diminished pituitary responsiveness to GHRF is secondary to intracellular GH pool depletion <i>S. B. Richardson and S. Twente</i>	E358
Relationships between cell surface insulin binding and endocytosis in adipocytes <i>A. L. Jochen</i>	E365
Effect of hyperglucagonemia on whole-body leucine metabolism in immature pigs before and during a meal <i>P. Ostaszewski and S. Nissen</i>	E372
Mitochondrial membrane transitions in heart and other organs of a hibernator <i>J. K. Raison, M. L. Augee, and R. C. Aloia</i>	E378

---

#### RAPID COMMUNICATIONS

Episodic release of insulin by rat pancreas: effects of CNS and state of satiety <i>R. H. Safarik, R. M. Joy, and D. L. Curry</i>	E384
--	------

No. 4. APRIL 1988

Renin substrate release in response to perturbations of renin-angiotensin system <i>P. Eggena and J. D. Barrett</i>	E389
Insulin resistance in uremia: insulin receptor kinase activity in liver and muscle from chronic uremic rats <i>F. Cecchin, O. Ittoo, M. K. Sinha, and J. F. Caro</i>	E394
Biological activity of 1,25-dihydroxyvitamin D <sub>3</sub> and 24-epi-1,25-dihydroxyvitamin D <sub>3</sub> <i>H. F. DeLuca, R. R. Sicinski, Y. Tanaka, P. H. Stern, and C. M. Smith</i>	E402

Metabolic fate of a gastric glucose load in unrestrained rats bearing a portal vein catheter <i>C. Smadja, J. Morin, P. Ferré, and J. Girard</i>	E407
Infusion and sampling site effects on two-pool model estimates of leucine metabolism <i>S. J. Helland, B. Grisdale-Helland, and S. Nissen</i>	E414
Differences in renal metabolism of insulin and cytochrome c <i>J. Herrman, R. E. Simmons, B. H. Frank, and R. Rabkin</i>	E419
Decreased autophosphorylation of EGF receptor in insulin-deficient diabetic rats <i>M. Okamoto, C. R. Kahn, R. Maron, and M. F. White</i>	E429
VIP and its homologues increase vascular conductance in certain endocrine and exocrine glands <i>L. J. Huffman, J. M. Connors, and G. A. Hedge</i>	E435
Measuring brain glucose phosphorylation with labeled glucose <i>H. E. Brändsted and A. Gjedde</i>	E443
An assessment of phosphodiesterase activity in situ after treatment of hepatocytes with hormones <i>T. W. Gettys, P. F. Blackmore, and J. D. Corbin</i>	E449
Insulin release by glucagon and secretin: studies with secretin-glucagon hybrids <i>H. Kofod, D. Andreu, P. Thams, R. B. Merrifield, C. J. Hedeskov, B. Hansen, and Å. Lernmark</i>	E454
Arginine metabolism in wounds <i>J. E. Albina, C. D. Mills, A. Barbul, C. E. Thirkill, W. L. Henry, Jr., B. Mastrofrancesco, and M. D. Caldwell</i>	E459
Hyperglycemia induced by electrical stimulation of lateral part of dorsal parabrachial nucleus <i>T. Fujiwara, K. Nagai, S. Takagi, and H. Nakagawa</i>	E468
Inhibition by extracellular Na <sup>+</sup> replacement of GRF-induced GH secretion from rat pituitary cells <i>M. Kato, M.-A. Hattori, and M. Suzuki</i>	E476
Effect of norepinephrine on consumption of oxygen in perfused skeletal muscle from cold-exposed rats <i>M. Shiota and S. Masumi</i>	E482
Effect of vasopressin blockade on blood pressure during water deprivation in intact and baroreceptor-denervated conscious dogs <i>L. C. Gregory, E. W. Quillen, Jr., L. C. Keil, D. Chang, and I. A. Reid</i>	E490
Diabetes and low Ca-P diet have opposite effects on adult and fetal bone mineral metabolism <i>J. Verhaeghe, R. Bouillon, W. Lissens, W. J. Visser, and F. A. Van Assche</i>	E496
1,25(OH) <sub>2</sub> D <sub>3</sub> and Ca-binding protein in fetal rats: relationship to the maternal vitamin D status <i>J. Verhaeghe, M. Thomasset, A. Bréhier, F. A. Van Assche, and R. Bouillon</i>	E505
Peptide YY antagonizes $\beta$ -adrenergic-stimulated release of insulin in dogs <i>G. H. Greeley, Jr., F. Lluis, G. Gomez, J. Ishizuka, B. Holland, and J. C. Thompson</i>	E513
Importance of intrahepatic mechanisms to gluconeogenesis from alanine during exercise and recovery <i>D. H. Wasserman, P. E. Williams, D. B. Lacy, D. R. Green, and A. D. Cherrington</i>	E518

#### SPECIAL COMMUNICATIONS

Calculation of substrate flux using stable isotopes <i>J. Rosenblatt and R. R. Wolfe</i>	E526
---	------

#### RAPID COMMUNICATIONS

Evaluation of the isotopic equilibration between lactate and pyruvate <i>R. R. Wolfe, F. Jahoor, and H. Miyoshi</i>	E532
--	------

#### ANNOUNCEMENTS

E536

Effects of lack of exercise on insulin secretion and action in trained subjects <i>D. S. King, G. P. Dalsky, W. E. Clutter, D. A. Young, M. A. Staten, P. E. Cryer, and J. O. Holloszy</i>	E537
Influence of mechanical stretch on growth and protein turnover of rat uterus <i>A. J. Douglas, E. W. Clarke, and D. F. Goldspink</i>	E543
Protein turnover in gravid and nongravid horns of uterus in pregnant rats <i>D. F. Goldspink and A. J. Douglas</i>	E549
Skeletal muscle glucose uptake during dynamic exercise in humans: role of muscle mass <i>E. A. Richter, B. Kiens, B. Saltin, N. J. Christensen, and G. Savard</i>	E555
Choice of infusion-sampling mode for tracer studies of free fatty acid metabolism <i>M. D. Jensen, P. J. Rogers, M. G. Ellman, and J. M. Miles</i>	E562
Role of $\text{Ca}^{2+}$ in response of aldosterone to stimulation by angiotensin II in vivo <i>E. I. M. Johnson, J. G. McDougall, J. P. Coghlan, D. A. Denton, B. A. Scoggins, and R. D. Wright</i>	E566
Uptake of exogenous substrates during hypoxia in fetal lambs <i>J. R. Milley</i>	E572
Allocation of systemic glucose output to cerebral utilization as a function of fetal canine growth <i>M. M. E. Huang, R. M. Kliegman, C. Trindade, D. Kall, and K. Voelker</i>	E579
Metabolism of dipeptides and their constituent amino acids by liver, gut, kidney, and muscle <i>H. Lochs, P. E. Williams, E. L. Morse, N. N. Abumrad, and S. A. Adibi</i>	E588
Dual role of glucocorticoids in regulation of pituitary content and secretion of gonadotropins <i>D. E. Suter, N. B. Schwartz, and S. J. Ringstrom</i>	E595
Insulin binding, internalization, and degradation by a cultured kidney cell line <i>C. Yagil, U. K. Ehmann, B. H. Frank, and R. Rabkin</i>	E601
Role of phosphoinositide metabolism in induction of memory in isolated perfused rat islets <i>W. S. Zawalich, V. A. Diaz, and K. C. Zawalich</i>	E609
Effects of age on metabolic responses to acute and chronic stress <i>M. R. Odio and A. Brodish</i>	E617
A role for insulin in cephalic phase of postprandial thermogenesis in dogs <i>P. Diamond and J. LeBlanc</i>	E625
Mechanism of insulin action on glucose transport in rat skeletal muscle <i>E. Sternlicht, R. J. Barnard, and G. K. Grimditch</i>	E633
Indexes of vitamin D deficiency in Japanese quail embryos <i>M. A. Elaroussi, L. R. Forte, H. V. Biellier, S. L. Eber, R. E. Poelling, and W. J. Krause</i>	E639
Pituitary and gonadal responsiveness is enhanced during GnRH-induced puberty <i>D. I. Spratt and W. F. Crowley, Jr.</i>	E652
Neuroendocrine-gonadal axis in men: frequent sampling of LH, FSH, and testosterone <i>D. I. Spratt, L. St. L. O'Dea, D. Schoenfeld, J. Butler, P. Narasimha Rao, and W. F. Crowley, Jr.</i>	E658
Selective uptake of HDL cholesterol ester by human fat cells <i>J.-P. Despres, B. S. Fong, J. Jimenez, P. Julien, and A. Angel</i>	E667

---

**RAPID COMMUNICATIONS**

Albumin gene transcription is enhanced in liver of nephrotic rats <i>A. Yamauchi, E. Imai, T. Noguchi, T. Tanaka, S. Yamamoto, H. Mikami, Y. Fukuhara, M. Fujii, Y. Orita, and T. Kamada</i>	E676
---	------

---

**ANNOUNCEMENTS**

E680

Bradykinin-induced vasoconstriction and thromboxane release in perfused human placenta <i>B. M. Wilkes and P. F. Mento</i>	E681
In vitro renal eicosanoid production during pregnancy in rabbits <i>G. P. Brown and R. C. Venuto</i>	E687
Fatty acid-independent inhibition of hepatic ketone body production by insulin in humans <i>U. Keller, P. P. G. Gerber, and W. Stauffacher</i>	E694
Preservation of insulin effects on glucose production and proteolysis during fasting <i>M. D. Jensen, J. M. Miles, J. E. Gerich, P. E. Cryer, and M. W. Haymond</i>	E700
Modulation of receptor-mediated gonadotropin action in rat testes by dietary fat <i>E. Sebokova, M. L. Garg, and M. T. Clandinin</i>	E708
Glucagon, not insulin, may play a secondary role in defense against hypoglycemia during exercise <i>K. R. Tuttle, J. C. Marker, G. P. Dalsky, N. S. Schwartz, S. D. Shah, W. E. Clutter, J. O. Holloszy, and P. E. Cryer</i>	E713
Regulation of glycogen synthase in muscle and adipose tissue during fasting and refeeding <i>D. Antwi, J. H. Youn, N. S. Shargill, D. D. Lesikar, and H. R. Kaslow</i>	E720
Slow to fast alterations in skeletal muscle fibers caused by clenbuterol, a $\beta_2$ -receptor agonist <i>R. J. Zeman, R. Ludemann, T. G. Easton, and J. D. Etlinger</i>	E726
Pituitary and peripheral hormone responses to $T_3$ administration during Antarctic residence <i>H. L. Reed, J. A. Ferreiro, K. M. Mohamed Shakir, K. D. Burman, and J. T. O'Brian</i>	E733
Metabolism of intact parathyroid hormone in isolated perfused rat liver and kidney <i>H. Daugaard, M. Egfjord, and K. Olggaard</i>	E740
Paradoxical organ-specific adaptations to streptozotocin diabetes mellitus in adult rats <i>D. J. Pillion, R. L. Jenkins, J. A. Atchison, C. R. Stockard, R. S. Clements, Jr., and W. E. Grizzle</i>	E749
Modulatory effect of glucose on VIP-induced gastric somatostatin release <i>R. Schmid, V. Schusdziarra, and M. Classen</i>	E756
Abnormalities in systemic norepinephrine kinetics in human congestive heart failure <i>D. Davis, R. Baily, and R. Zelis</i>	E760
Role of gastric inhibitory polypeptide in postprandial hyperinsulinemia of obesity <i>L. R. Roust, M. Stesin, V. L. W. Go, P. C. O'Brien, R. A. Rizza, and F. J. Service</i>	E767
Microtubule and plasmalemmal reorganization: acute response to estrogen <i>C. M. Szego, B. M. Sjöstrand, B. J. Seeler, J. W. Baumer, and F. S. Sjöstrand</i>	E775

---

#### SPECIAL COMMUNICATIONS

Estimating false-positive and false-negative errors in analyses of hormonal pulsatility <i>E. Van Cauter</i>	E786
---	------

---

#### RAPID COMMUNICATIONS

Characterization of $\beta$ -adrenergic receptors of human skeletal muscle obtained by needle biopsy <i>S. B. Liggett, S. D. Shah, and P. E. Cryer</i>	E795
---	------

---

#### LETTERS TO THE EDITOR

Cortisol production and clearance in sheep <i>B. A. Scoggins, C. E. Wood and J. Silbiger</i>	E799
---	------

---

<i>Subject Index to Volume 17</i>	E801
<i>Author Index to Volume 17</i>	E809



# American Journal of Physiology: Gastrointestinal and Liver Physiology

No. 1. JANUARY 1988

Biliary catabolism of glutathione and differential reabsorption of its amino acid constituents <i>N. Ballatori, R. Jacob, C. Barrett, and J. L. Boyer</i>	G1
Effects of alterations in bolus viscosity on esophageal peristalsis in humans <i>C. P. Dooley, B. Schlossmacher, and J. E. Valenzuela</i>	G8
Absorption and transport of milk calcium by infant rats <i>H. H. Blake and S. J. Henning</i>	G12
Identical patterns of somatostatin secretion from isolated antrum and fundus of rat stomach <i>M. L. Schubert, B. Saffouri, and G. M. Makhlouf</i>	G20
Distinct activation of $\text{Na}^+ - \text{H}^+$ exchange by gastrin and CCK peptide in acini from guinea pig <i>M. J. Bastie, M. Delvaux, M. Dufresne, J. S. Saunier-Blache, N. Vaysse, and A. Ribet</i>	G25
Rat parietal cell function after prolonged inhibition of gastric acid secretion <i>H. Larsson, E. Carlsson, B. Ryberg, J. Fryklund, and B. Wallmark</i>	G33
Modulation of histamine release from canine fundic mucosal mast cells <i>A. H. Soll, M. Toomey, D. Culp, F. Shanahan, and M. A. Beaven</i>	G40
Glutathione modulates toxic oxygen metabolite injury of canine chief cell monolayers in primary culture <i>C. E. Olson</i>	G49
Effects of ethanol on parietal cell membrane phospholipids and proton pump function <i>A. R. Mazzeo, J. Nandi, and R. A. Levine</i>	G57
Influence of hormones on glycogen and glucose metabolism in embryonic chick intestine <i>B. L. Black</i>	G65
Active calcium transport by intestinal endoplasmic reticulum during maturation <i>F. K. Ghishan and N. Arab</i>	G74
Characteristics of putrescine uptake in isolated rat enterocytes <i>J. Kumagai and L. R. Johnson</i>	G81
Development of gastrin synthesis and posttranslational processing mechanisms in rats <i>L. Marino, K. Sugano, and T. Yamada</i>	G87
Secretagogues activate chloride transport pathways in pancreatic zymogen granules <i>K. W. Gasser, J. DiDomenico, and U. Hopfer</i>	G93
Effects of rectal distension on the sphincter ani externus and levator ani muscles in cats <i>B. Dubrovsky</i>	G100
Electrophysiological analysis of responses to intrinsic nerves in circular muscle of opossum esophageal muscle <i>R. Serio and E. E. Daniel</i>	G107
Is there a role for leukotrienes as mediators of ethanol-induced gastric mucosal damage? <i>J. L. Wallace, P. L. Beck, and G. P. Morris</i>	G117
Increased responsiveness of jejunal longitudinal muscle in <i>Trichinella</i> -infected rats <i>D. L. Vermillion and S. M. Collins</i>	G124

---

## RAPID COMMUNICATIONS

Evaluation of myosin light chain phosphorylation in isolated pancreatic acini <i>D. B. Burnham, H. D. Söling, and J. A. Williams</i>	G130
---	------

Norepinephrine uptake by rat jejunum: modulation by angiotensin II <i>A. Suvannapura and N. R. Levens</i>	G135
Neonatal and maternal prostaglandin in the ontogenetic response of rat gastric mucosa to H <sup>+</sup> <i>C. E. Thorn and B. L. Tepperman</i>	G142
Functionally distinct receptors for cholecystokinin and gastrin on dispersed chief cells from guinea pig stomach <i>J. A. Cherner, V. E. Sutliff, D. M. Grybowski, R. T. Jensen, and J. D. Gardner</i>	G151
Histamine or adenosine blockade alters intestinal blood flow autoregulation in swine <i>N. M. Buckley, S. Diamant, I. D. Frasier, and K. Owusu</i>	G156
Neural regulation of duodenal alkali secretion: effects of electrical field stimulation <i>J. R. Crampton, L. G. Gibbons, and W. D. W. Rees</i>	G162
A physical model of the intrathoracic stomach <i>W. A. Bemelman, J. Verburg, W. H. Brummelkamp, and P. J. Kloppen</i>	G168
Structure-activity relationship studies on cholecystokinin: analogues with partial agonist activity <i>M.-C. Galas, M.-F. Lignon, M. Rodriguez, C. Mendre, P. Fulcrand, J. Laur, and J. Martinez</i>	G176
Effect of somatostatin on basal and stimulated gastric secretion in the cod, <i>Gadus morhua</i> <i>B. Holstein and C. Cederberg</i>	G183
Autoregulation in the developing postnatal intestinal circulation <i>P. T. Nowicki and C. E. Miller</i>	G189
Distribution of polyamines and their biosynthetic enzymes in intestinal adaptation <i>G. D. Luk and P. Yang</i>	G194
Somatostatin modulates cholinergic neurotransmission in canine antral muscle <i>C. B. Koelbel, G. van Deventer, S. Khawaja, M. Mogard, J. H. Walsh, and E. A. Mayer</i>	G201
Motilin receptors on isolated gastric smooth muscle cells <i>D. S. Louie and C. Owyang</i>	G210
Somatostatin inhibits VIP-stimulated amylase release from perfused guinea pig pancreatic acini <i>P. Singh, I. Asada, A. Owlia, T. J. Collins, and J. C. Thompson</i>	G217
Sites of action of $\mu$ -, $\kappa$ -, and $\sigma$ -opiate receptor agonists at the feline ileocecal sphincter <i>A. Ouyang, P. Vos, and S. Cohen</i>	G224
Ursodeoxycholic acid choleresis: relationship to biliary HCO <sub>3</sub> <sup>-</sup> and effects of Na <sup>+</sup> -H <sup>+</sup> exchange inhibitors <i>E. L. Renner, J. R. Lake, E. J. Cragoe, Jr., R. W. Van Dyke, and B. F. Scharschmidt</i>	G232
Downregulation of protein kinase C in guinea pig pancreatic acini: effects on secretion <i>C. K. Sung, S. R. Hootman, E. L. Stuenkel, C. Kuroiwa, and J. A. Williams</i>	G242
Human pancreatic secretion during phase II antral motility of the interdigestive cycle <i>P. Layer, A. T. H. Chan, V. L. W. Go, and E. P. DiMagno</i>	G249
Comparison of gastrointestinal responses to CCK-8 and associated with vomiting <i>I. M. Lang, J. Marvig, and S. K. Sarna</i>	G254
Ammonia production from intraluminal amino acids in canine jejunum <i>F. L. Weber, Jr., D. W. Friedman, and K. M. Fresard</i>	G264
Nature of taurodehydrocholic acid uptake in rat hepatocytes <i>W. G. M. Hardison, P. J. Lowe, and E. Gosink</i>	G269

---

#### SPECIAL COMMUNICATIONS

Microsphere estimates of blood flow: methodological considerations <i>C. von Ritter, R. A. Hinder, W. Womack, P. Bauerfeind, C. J. Fimmel, P. R. Kvietys, D. N. Granger, and A. L. Blum</i>	G275
--	------

## EDITORIAL REVIEW

## Role of blood flow in gastric acid secretion

*L. Holm and M. A. Perry*

G281

## Bovine gallbladder muscularis: source of a myogenic receptor for cholecystokinin

*B. Schjoldager, M. J. Shaw, S. P. Powers, P. F. Schmalz,  
J. Szurszewski, and L. J. Miller*

G294

## Stimulation of rabbit lacrimal gland secretion with biologically active peptides

*D. A. Dartt, M. Shulman, K. L. Gray, S. R. Rossi,  
C. Matkin, and J. P. Gilbard*

G300

## Intestinal anaphylaxis: rapid changes in mucosal ion transport and morphology

*D. A. Baron, A. W. Baird, A. W. Cuthbert, and H. S. Margolius*

G307

## Thyroxine effect on exocrine pancreatic development in rats

*R.-B. Lu, K. Chaichanawatanakul, C.-H. Lin, E. Lebenthal, and P.-C. Lee*

G315

## Effects of somatostatin on splanchnic hemodynamics and plasma glucagon in portal hypertensive rats

*D. Kravetz, J. Bosch, M. T. Arderiu, M. P. Pizcueta, R. Casamitjana,  
F. Rivera, and J. Rodés*

G322

## Acid-base effects on ileal sodium chloride absorption in vitro

*S. G. Vaccarezza and A. N. Charney*

G329

## Taurine transport by rat intestine

*J. A. Barnard, S. Thaxter, K. Kikuchi, and F. K. Ghishan*

G334

## Intestinal capillary filtration in acute and chronic portal hypertension

*R. J. Korthuis, D. A. Kinden, G. E. Brimer, K. A. Slattery,  
P. Stogsdill, and D. N. Granger*

G339

## Triton WR-1339-induced changes in serum lipids and biliary lipid secretion

*M. Zeniya and A. Reuben*

G346

## Differentiation of rat small intestinal epithelial cells by extracellular matrix

*K. M. Carroll, T. T. Wong, D. L. Drabik, and E. B. Chang*

G355

## Effect of bombesin and gastrin-releasing peptide on canine sphincter of Oddi

*C. E. Sievert, Jr., T. J. Potter, A. S. Levine, J. E. Morley,  
S. E. Silvis, and J. A. Vennes*

G361

## Gradual reintroduction of oxygen reduces reperfusion injury in cat stomach

*M. A. Perry and S. S. Wadhwa*

G366

## Reduced mucosal prostaglandin synthesis after massive small bowel resection

*J. A. Vanderhoof, J. H. Y. Park, and C. J. Grandjean*

G373

Effect of prostaglandins on the ontogenetic response of rat gastric mucosa to luminal H<sup>+</sup>*C. E. Thorn, B. D. Soper, and B. L. Tepperman*

G378

## Lymphatic pathways and role of valves in lymph propulsion from small intestine

*J. L. Unthank and H. G. Bohlen*

G389

Function and structure of parietal cells after H<sup>+</sup>-K<sup>+</sup>-ATPase blockade*J. Fryklund, H. F. Helander, B. Elander, and B. Wallmark*

G399

## Amiloride inhibits rat mucosal ornithine decarboxylase activity and DNA synthesis

*M. G. Ulrich-Baker, P. Wang, L. Fitzpatrick, and L. R. Johnson*

G408

## Functional coupling of tight junctions and microfilaments in T84 monolayers

*J. L. Madara, J. Stafford, D. Barenberg, and S. Carlson*

G416

## Cephalic phase response of pancreatic exocrine secretion in conscious dogs

*I. Ohara, S.-I. Otsuka, and Y. Yugari*

G424

## Specific receptors for epidermal growth factor in rat intestinal microvillus membranes

*J. F. Thompson*

G429

## Pancreatic bicarbonate response to HCl before and after cutting the extrinsic nerves of the pancreas in dogs

*W. Niebel, C. Beglinger, and M. V. Singer*

G436

Altered regulation of intestinal ion transport by enteric nerves in diabetic rats

*M. H. Perdue and J. S. Davison*

G444

Regulation of food intake and hepatic protein synthesis by recombinant-derived cytokines

*L. L. Moldawer, C. Andersson, J. Gelin, and K. G. Lundholm*

G450

---

RAPID COMMUNICATIONS

Receptors for insulin-like growth factors I and II in rat gastrointestinal epithelium

*M. Laburthe, C. Rouyer-Fessard, and S. Gammeltoft*

G457

No. 4. APRIL 1988

EDITORIAL

ESR, albumin, and the riddle of organic anion uptake by the liver

*E. L. Forker and C. Ghiron*

G463

---

Conformational change in plasma albumin due to interaction with isolated rat hepatocyte

*T. Horie, T. Mizuma, S. Kasai, and S. Awazu*

G465

Laser-Doppler flowmetry for estimating liver blood flow

*D. Arvidsson, H. Svensson, and U. Haglund*

G471

Cerebral evoked potentials after endorectal mechanical stimulation in humans

*L. Collet, P. Meunier, R. Duclaux, S. Chery-Croze, and P. Falipou*

G477

Evidence for the involvement of 5-lipoxygenase products in the ethanol-induced intestinal plasma protein loss

*I. T. Beck, A. J. Boyd, and P. K. Dinda*

G483

Contractile effects of manganese on taenia of guinea pig cecum

*T. W. Lategan and A. F. Brading*

G489

Ethanol-induced increase in portal blood flow: role of adenosine

*H. Orrego, F. J. Carmichael, V. Saldivia, H. G. Giles, S. Sandrin, and Y. Israel*

G495

Preparation and characterization of viable epithelial cells from rabbit distal colon

*J. D. Kaunitz*

G502

Temperature dependence of high-affinity CCK receptor binding and CCK internalization in rat pancreatic acini

*J. A. Williams, A. C. Bailey, and E. Roach*

G513

Electrical behavior of myenteric neurons in guinea pig distal colon

*P. R. Wade and J. D. Wood*

G522

Somatostatin inhibition of secretagogue and forskolin-stimulated gastric acid secretion

*F. Michelangeli, M.-C. Ruiz, C. L. Rodriguez, and A. Pelacca*

G531

Gastrin: levels and trophic action during advancing age

*A. P. N. Majumdar, E. A. Edgerton, Y. Dayal, and S. N. S. Murthy*

G538

Ca<sup>2+</sup>- and cAMP-induced protein phosphorylation in lacrimal gland basolateral membranes

*D. A. Dartt, A. K. Mircheff, M. Donowitz, and G. W. G. Sharp*

G543

Digestive motor patterns and transit of luminal contents in canine ileum

*M.-L. Siegle and H.-J. Ehrlein*

G552

Autoregulatory escape from norepinephrine infusion: roles of adenosine and histamine

*K. D. Crissinger, P. R. Kviety, and D. N. Granger*

G560

An autoradiographic study of regional distribution of gastric mucosal blood flow

*W. J. Angerson, J. G. Geraghty, and D. C. Carter*

G566

Phosphorus nuclear magnetic resonance in isolated perfused rat pancreas

*T. Matsumoto, T. Kanno, Y. Seo, M. Murakami, and H. Watari*

G575

Specific binding of lactoferrin to brush-border membrane: ontogeny and effect of glycan chain

*L. A. Davidson and B. Lönnerdal*

G580

Ca <sup>2+</sup> channel blockers interact with $\alpha_2$ -adrenergic receptors in rabbit ileum <i>F. R. Horaiyan, M. Donowitz, J. Wicks, S. Cusolito, M. E. El Sabaan, G. A. Weiland, and G. W. G. Sharp</i>	G586
Giant migrating contractions of the canine cecum <i>S. K. Sarna, K. R. Prasad, and I. M. Lang</i>	G595
Kinetics of hepatic alanine uptake and urea synthesis in pigs <i>H. Vilstrup and L. T. Skovgaard</i>	G602
Isolation and characterization of populations of mature and immature rat colonocytes <i>D. J. Ahnen, T. A. Reed, and J. M. Bozdech</i>	G610
Stimulation of acid secretion and phosphoinositol production by rat parietal cell muscarinic M <sub>2</sub> receptors <i>A. Pfeiffer, H. Rochlitz, A. Herz, and G. Paumgartner</i>	G622
Effect of aging on intestinal absorption of aromatic amino acids in vitro in the rat <i>F. Navab and C. G. Winter</i>	G630

#### LETTERS TO THE EDITOR

Drug effects on gastric emptying in animal models depend on the nature of test meals used <i>L. Buéno and J. Fioramonti; Y. Taché</i>	G637
--	------

No. 5. MAY 1988

TRH analogue, RX 77368, injected into dorsal vagal complex stimulates gastric secretion in rats <i>R. L. Stephens, T. Ishikawa, H. Weiner, D. Novin, and Y. Taché</i>	G639
Cholestasis and the interactions of sulfated glyco- and taurolithocholate with calcium <i>R. van der Meer, R. J. Vonk, and F. Kuipers</i>	G644
Motility of the pyloric sphincter studied by the inductograph method in conscious dogs <i>H.-J. Ehrlein</i>	G650
Developmental intestinal vascular responses to venous pressure elevation <i>K. D. Crissinger, P. R. Kviety, and D. N. Granger</i>	G658
Visualization of amylase secretion from individual pancreatic acini <i>D. Bosco, M. Chanson, R. Bruzzone, and P. Meda</i>	G664
Antropyloroduodenal motor responses to intraduodenal lipid infusion in healthy volunteers <i>S. Heddle, J. Dent, N. W. Read, L. A. Houghton, J. Toouli, M. Horowitz, G. J. Maddern, and J. Downton</i>	G671
Development of the muscarinic receptor in rabbit gastric smooth muscle <i>T. Tomomasa, P. E. Hyman, C. T. Hsu, J. Jing, and W. J. Snape, Jr.</i>	G680
Estrogen modulates ileal basolateral membrane lipid dynamics and Na <sup>+</sup> -K <sup>+</sup> -ATPase activity <i>S. M. Schwarz, H. E. Bostwick, and M. S. Medow</i>	G687
Thromboxane synthesis inhibitors and postprandial jejunal capillary exchange capacity <i>M. J. Mangino and C. C. Chou</i>	G695
Electrotomographic current spread in colonic smooth muscle <i>J. D. Huizinga and E. Chow</i>	G702
Lipoprotein lipase uptake by the liver: localization, turnover, and metabolic role <i>S. Vilaró, M. Llobera, G. Bengtsson-Olivecrona, and T. Olivecrona</i>	G711
Effect of GABA on basal and vagally mediated gastric acid secretion and hormone release in dogs <i>R. C. Thirby, M. H. Stevens, A. J. Blair, F. Petty, I. L. Crawford, I. L. Taylor, J. H. Walsh, and M. Feldman</i>	G723
Stimulation of taurocholate and glycocholate efflux from the rat hepatocyte by arginine vasopressin <i>W. F. Kuhn and D. A. Gewirtz</i>	G732
Changes in jejunal myoelectrical activity during exercise in fed untrained dogs <i>M. J. Kenney, A. Flatt, R. W. Summers, C. K. Brown, and C. V. Gisolfi</i>	G741

Lymphatic function in the liver after hepatic venous pressure elevation <i>J. R. Elk, R. E. Drake, J. P. Williams, J. C. Gabel, and G. A. Laine</i>	G748
Mechanisms of conversion of xanthine dehydrogenase to xanthine oxidase in ischemic rat liver and kidney <i>T. G. McKelvey, M. E. Höllwarth, D. N. Granger, T. D. Engerson, U. Landler, and H. P. Jones</i>	G753
Selective modulation of hepatic and ileal $\text{Na}^+ \text{-K}^+$ -ATPase by bile salts in the rat <i>F. R. Simon, E. Sutherland, and J. Sutherland</i>	G761
Conversion of xanthine dehydrogenase to oxidase in ischemic rat intestine: a reevaluation <i>D. A. Parks, T. K. Williams, and J. S. Beckman</i>	G768
Starch and glucose oligosaccharides protect salivary-type amylase activity at acid pH <i>J. L. Rosenblum, C. L. Irwin, and D. H. Alpers</i>	G775
Dissociation of fluid secretion and energy supply in rat mandibular gland by high dose of ACh <i>M. Murakami, Y. Seo, and H. Watari</i>	G781

---

<b>Announcements</b>	G788
----------------------	------

## No. 6. JUNE 1988

Characterization of receptors for calcitonin gene-related peptide on gastric smooth muscle cells <i>P. N. Maton, V. E. Sutliff, Z.-C. Zhou, S. M. Collins, J. D. Gardner, and R. T. Jensen</i>	G789
Quinine decreases hepatocyte transmembrane potential and inhibits amino acid transport <i>R. Wondergem and L. B. Castillo</i>	G795
CNS blockade of acoustic stress-induced gastric motor inhibition by $\kappa$ -opiate agonists in dogs <i>M. Gue, C. Honde, X. Pascaud, J. L. Junien, M. Alvinerie, and L. Bueno</i>	G802
Sources for calcium for contraction of distal circular muscle or taenia coli in the rabbit <i>N. Sevy and W. J. Snape, JR.</i>	G808
Small intestine as possible source of increased plasma cGMP after administration of $\alpha$ -hANP to dogs <i>K. Ito, T. Yukimura, T. Takenaga, K. Yamamoto, K. Kangawa, and H. Matsuo</i>	G814
Effects of cholecystokinin octapeptide on contractile motility of guinea pig common bile duct <i>T. Takahashi, M. Kusunoki, M. Kanto, T. Yamamura, and J. Utsunomiya</i>	G819
Intestinal transport and metabolism of oxidized ascorbic acid (dehydroascorbic acid) <i>R. C. Rose, J.-L. Choi, and M. J. Koch</i>	G824
Primary culture of PYY cells from canine colon <i>G. W. Aponte, I. L. Taylor, and A. H. Soll</i>	G829
Role of pancreatic enzymes on release of cholecystokinin-pancreozymin in response to fat <i>S. Watanabe, K. Y. Lee, T.-M. Chang, L. Berger-Ornstein, and W. Y. Chey</i>	G837
Physiological measurement of luminal stirring in perfused rat jejunum <i>B. W. Anderson, A. S. Levine, D. G. Levitt, J. M. Kneip, and M. D. Levitt</i>	G843
Effects of leukotriene C <sub>4</sub> on pancreatic secretion and circulation in dogs <i>S. J. Konturek, W. Pawlik, K. Czarnobilski, P. Gustaw, J. Jaworek, G. Beck, and H. Jendralla</i>	G849
Gastric $\text{H}^+ \text{-K}^+$ -ATPase in situ: relation to secretory state <i>S. J. Hersey, L. Steiner, S. Matheravidathu, and G. Sachs</i>	G856
Role of glucagon in cholecystokinin-stimulated bile flow in dogs <i>D. L. Kaminski, Y. G. Deshpande, and M. C. Beinfeld</i>	G864
Ontogenesis of intestinal taurine transport: evidence for a $\beta$ -carrier in developing rat jejunum <i>M. S. Moyer, A. L. Goodrich, M. M. Rolfs, and F. J. Suchy</i>	G870

Amylase secretion by parotid glands and pancreas of diabetic rats during feeding <i>M. Kurahashi and K. Inomata</i>	G878
Characterization of ability of various substance P antagonist to inhibit action of bombesin <i>R. T. Jensen, P. Heinz-Erian, S. Mantey, S. W. Jones, and J. D. Gardner</i>	G883
Effects of serotonin on $\text{Na}^+ - \text{H}^+$ exchange and intracellular calcium in isolated chicken enterocytes <i>R. Hirose and E. B. Chang</i>	G891
Aldosterone and $\text{PCO}_2$ enhance rubidium absorption in rat distal colon <i>R. D. Perrone and D. E. McBride</i>	G898
Effects of a high-protein, low-carbohydrate diet on degradation of sucrase-isomaltase in rat jejunoleum <i>T. Goda, F. Raul, F. Gossé, and O. Koldovský</i>	G907
Developmental regulation of rat intrinsic factor mRNA <i>B. K. Dieckgraefe, B. Seetharam, and D. H. Alpers</i>	G913

---

#### RAPID COMMUNICATIONS

Calcitonin and CGRP inhibit gastrointestinal transit via distinct neuronal pathways <i>H. Jürgen Lenz</i>	G920
pH regulatory mechanisms in rat pancreatic ductal cells <i>E. L. Stuenkel, T. E. Machen, and J. A. Williams</i>	G925

---

<i>Subject Index to Volume 17</i>	G931
<i>Author Index to Volume 17</i>	G939

# American Journal of Physiology: Heart and Circulatory Physiology

No. 1. JANUARY 1988

Phase-locked rhythms in periodically stimulated heart cell aggregates <i>M. R. Guevara, A. Shrier, and L. Glass</i>	H1
Influence of vasoconstrictor systems on leg vasodilation during heating of dehydrated baboons <i>R. M. Thornton and D. W. Proppe</i>	H11
Mechanism of diminished contractile response to catecholamines during acidosis <i>J. D. Marsh, T. I. Margolis, and D. Kim</i>	H20
Spontaneous vasomotion in pressurized cerebral arteries from genetically hypertensive rats <i>G. Osol and W. Halpern</i>	H28
Oxygen-saving effect of negative work in dog left ventricle <i>H. Suga, Y. Goto, Y. Yasumura, T. Nozawa, S. Futaki, N. Tanaka, and M. Uenishi</i>	H34
Pressor and intestinal vascular bed responses to vasopressin after cholinergic blockade <i>D. S. Martin and J. R. McNeill</i>	H45
Developmental changes in regional and cerebral blood flow in fetal and newborn lambs <i>W. Szymonowicz, A. M. Walker, L. Cussen, J. Cannata, and V. Y. H. Yu</i>	H52
Contractile properties of single isolated feline ventriculocytes <i>V. Duthinh and S. R. Houser</i>	H59
Vasomotion in cerebral microcirculation of awake rabbits <i>W. G. Hundley, G. J. Renaldo, J. E. Levasseur, and H. A. Kontos</i>	H67
Hypoxemia and hypercapnia in conscious dogs: opioid modulation of catecholamines <i>C. E. Rose, Jr., L. B. Latham, V. L. Brashers, K. Y. Rose, M. P. Sandridge, R. M. Carey, J. S. Althaus, and E. D. Miller, Jr.</i>	H72
Effects of thyroid state on venous compliance and left ventricular performance in rats <i>R. G. Gay, T. E. Raya, L. D. Lancaster, R. W. Lee, E. Morkin, and S. Goldman</i>	H81
Initial equilibration of albumin in rabbit hindpaw skin and lymph <i>M. R. Powers, J. R. Wallace, and D. R. Bell</i>	H89
Time course and determinants of recovery of function after reversible ischemia in conscious dogs <i>R. Bolli, W.-X. Zhu, J. I. Thornby, P. G. O'Neill, and R. Roberts</i>	H102
Use of acetylcholine to measure total vascular pressure-volume relationship in dogs <i>R. W. Lee, L. D. Lancaster, R. G. Gay, M. Paquin, and S. Goldman</i>	H115
Specificity of FPL 57231 for leukotriene D <sub>4</sub> receptors in fetal pulmonary circulation <i>G. E. Gause, R. Baker, and S. Cassin</i>	H120
Blood flow through new microvessels: factors that affect regrowth of vasa vasorum <i>J. K. Williams, M. L. Armstrong, and D. D. Heistad</i>	H126
Effect of sciatic nerve stimulation on pial arterioles in rats <i>A. C. Ngai, K. R. Ko, S. Morii, and H. R. Winn</i>	H133
Effects of dihydropyridine calcium channel modulators on cardiac sodium channels <i>A. Yatani, D. L. Kunze, and A. M. Brown</i>	H140
Effect of intracarotid administration of ouabain in dogs <i>J. A. Lopez, A. D. Timmis, H. Garan, C. J. Homcy, and W. J. Powell, Jr.</i>	H148
Base-line O <sub>2</sub> extraction influences cerebral blood flow response to hematocrit <i>M. L. Hudak, Y.-L. Tang, J. Massik, R. C. Koehler, R. J. Traystman, and M. D. Jones, Jr.</i>	H156
Vascular relaxation and cGMP in hypertension <i>Y. Otsuka, A. DiPiero, E. Hirt, B. Brenneman, and W. Lockette</i>	H163
Cardiac gap junction channel activity in embryonic chick ventricle cells <i>R. D. Veenstra, and R. L. DeHaan</i>	H170

---

**SPECIAL COMMUNICATIONS**

Improved techniques for cardiovascular monitoring in rats as applied during endotoxemia <i>B. Biber, C. F. Schaefer, M. J. Smolik, M. R. Lerner, D. J. Brackett, M. F. Wilson, and L. Fagreus</i>	H181
An electronic, negative feedback device to control arterial pressure <i>B. J. Pardini, D. D. Lund, R. D. Wurster, and R. H. Anderson</i>	H187

---

**RAPID COMMUNICATIONS**

Delayed rectifier K <sup>+</sup> current in embryonic chick heart ventricle <i>D. E. Clapham and D. E. Logothetis</i>	H192
--	------

---

<b>ANNOUNCEMENTS</b>	H198
----------------------	------

**No. 2. FEBRUARY 1988**

Differentiation of $\beta_1$ - and $\beta_2$ -adrenoceptor-mediated effects in humans <i>O.-E. Brodde, A. Daul, A. Wellstein, D. Palm, M. C. Michel, and J. J. Beckeringh</i>	H199
Estimates of left ventricular interstitial fluid adenosine during catecholamine stimulation <i>J. M. Gidday, H. E. Hill, R. Rubio, and R. M. Berne</i>	H207
Computer analysis of cardiovascular changes during sleep-wake cycle in Sprague-Dawley rats <i>J. Lacombe, A. Nosjean, J. M. Meunier, and R. Laguzzi</i>	H217
Release of adenosine from pig aortic endothelial cells during hypoxia and metabolic inhibition <i>J. C. Shryock, R. Rubio, and R. M. Berne</i>	H223
Bioassay by cross-perfusion for circulating inotropic factor in hypertension <i>H. W. Overbeck</i>	H230
Osmolality-mediated Fahraeus and Fahraeus-Lindqvist effects for human RBC suspensions <i>C. B. McKay and H. J. Meiselman</i>	H238
Cerebral blood flow, glucose use, and CSF ionic regulation in potassium-depleted rats <i>H. Schröck and W. Kuschinsky</i>	H250
Complement is not involved in monocrotaline pyrrole-induced pulmonary injury <i>L. H. Bruner, K. J. Johnson, G. O. Till, and R. A. Roth</i>	H258
T <sub>3</sub> treatment does not prevent myocardial dysfunction in chronically diabetic rats <i>R. W. Barbee, R. E. Shepherd, and A. H. Burns</i>	H265
High-intensity exercise training increases vascular transport capacity of rat hindquarters <i>W. L. Sexton, R. J. Korthuis, and M. H. Laughlin</i>	H274
Matching between feline left ventricle and arterial load: optimal external power or efficiency <i>G. P. Toorop, G. J. Van den Horn, G. Elzinga, and N. Westerhof</i>	H279
Effects of vasoactive stimuli on blood flow to choroid plexus <i>F. M. Faraci, W. G. Mayhan, J. K. Williams, and D. D. Heistad</i>	H286
O <sub>2</sub> consumption of dog heart under decreased coronary perfusion and propranolol <i>H. Suga, Y. Goto, Y. Yasumura, T. Nozawa, S. Futaki, N. Tanaka, and M. Uenishi</i>	H292
Single capillary permeability to proteins having similar size but different charge <i>R. H. Adamson, V. H. Huxley, and F. E. Curry</i>	H304
Autonomic modulation of atrioventricular conduction in ouabain-treated dogs <i>D. W. Wallick, S. L. Stuesse, and P. J. Martin</i>	H313
O <sub>2</sub> modulation of single-vessel hydraulic conductance <i>V. L. Tucker and V. H. Huxley</i>	H317
Left ventricular function during chronic endotoxemia in swine <i>K. Lee, H. van der Zee, S. W. Dziuban, Jr., K. Luhmann, and R. D. Goldfarb</i>	H324

Effect of hemodilution on oxygen transport in arteriolar networks of hamster striated muscle <i>L. Kuo and R. N. Pittman</i>	H331
Effects of age and training status on heart rate recovery after peak exercise <i>K. C. Darr, D. R. Bassett, B. J. Morgan, and D. P. Thomas</i>	H340
Spatial heterogeneity of local blood flow and metabolite content in dog hearts <i>D. Franzen, R. S. Conway, H. Zhang, E. H. Sonnenblick, and C. Eng</i>	H344
Stimulating intestinal afferents reflexly activates cardiovascular system in cats <i>G. A. Ordway, K. R. Boheler, and J. C. Longhurst</i>	H354
Aortic pressure reduction redistributes transmural blood flow in dog left ventricle <i>J. J. Smolich, P. L. Weissberg, A. Broughton, and P. I. Korner</i>	H361
Adenosine handling in interstitia of cremaster muscle studied by bioassay <i>D. E. Mohrman</i>	H369
Evaluation of baroreceptor reflex by blood pressure monitoring in unanesthetized cats <i>G. Bertinieri, M. Di Rienzo, A. Cavallazzi, A. U. Ferrari, A. Pedotti, and G. Mancia</i>	H377

---

#### MODELING METHODOLOGY FORUM

Microvascular exchange and interstitial volume regulation in the rat: model validation <i>J. L. Bert, B. D. Bowen, and R. K. Reed</i>	H384
--	------

No. 3. MARCH 1988

#### INVITED REVIEW

Direct G protein gating of ion channels <i>A. M. Brown and L. Birnbaumer</i>	H401
---	------

---

Effects of hemodilution on skin microcirculation <i>S. Mirhashemi, G. A. Breit, R. H. Chavez Chavez, and M. Intaglietta</i>	H411
Adenosine deaminase attenuates norepinephrine-induced coronary functional hyperemia <i>H. F. Downey, G. F. Merrill, S. Yonekura, N. Watanabe, and C. E. Jones</i>	H417
Specific albumin binding to microvascular endothelium in culture <i>J. E. Schnitzer, W. W. Carley, and G. E. Palade</i>	H425
Cardiovascular effects of AVP and ANG in experimental pulmonic stenosis in rats <i>G. A. J. Rieger, M. Albert, and K. Kochsiek</i>	H438
Effects of New World scorpion toxins on single-channel and whole cell cardiac sodium currents <i>A. Yatani, G. E. Kirsch, L. D. Possani, and A. M. Brown</i>	H443
Distensibility of hepatic venous resistance sites and consequences on portal pressure <i>C. V. Greenway and W. W. Lautt</i>	H452
Cholinergic neurotransmission in human corpus cavernosum. I. Responses of isolated tissue <i>I. Saenz de Tejada, R. Blanco, I. Goldstein, K. Azadzoi, A. de las Morenas, R. J. Krane, and R. A. Cohen</i>	H459
Cholinergic neurotransmission in human corpus cavernosum. II. Acetylcholine synthesis <i>R. Blanco, I. Saenz de Tejada, I. Goldstein, R. J. Krane, H. H. Wotiz, and R. A. Cohen</i>	H468
Influence of risk area size and location on native collateral resistance and ischemic zone perfusion <i>D. C. Gumm, S. M. Cooper, S. B. Thompson, M. L. Marcus, and D. G. Harrison</i>	H473
fMLP provokes coronary vasoconstriction and myocardial ischemia in rabbits <i>M. N. Gillespie, D. C. Booth, B. J. Friedman, M. R. Cunningham, M. Jay, and A. N. DeMaria</i>	H481
Effect of hypoxia on lung lymph flow in newborn lambs with left atrial hypertension <i>J. U. Raj, T. A. Hazinski, and R. D. Bland</i>	H487

Effects of dietary fish oil on cardiac responsiveness to adrenoceptor stimulation <i>D. K. Reibel, M. A. Holahan, and C. E. Hock</i>	H494
Angiotensin II prevents hypoxic pulmonary hypertension and vascular changes in rat <i>M. Rabinovitch, M. Mullen, H. C. Rosenberg, K. Maruyama, H. O'Brodovich, and P. M. Olley</i>	H500
Effects of nonhypotensive endotoxemia in conscious rats: role of prostaglandins <i>M. Burnier, B. Waeber, J. F. Aubert, J. Nussberger, and H. R. Brunner</i>	H509
Pressure overload changes cardiac skinned-fiber mechanics in rats, not in guinea pigs <i>R. Ventura-Clapier, H. Mekhfi, P. Oliviero, and B. Swynghedauw</i>	H517
Coronary hemodynamic responses during local hemodilution in canine hearts <i>G. J. Crystal</i>	H525
Ventricular preload alters intravascular and extravascular resistances of coronary collaterals <i>R. S. Conway, E. S. Kirk, and C. Eng</i>	H532
Development of pulmonary vascular response to oxygen <i>F. C. Morin III, E. A. Egan, W. Ferguson, and C. E. G. Lundgren</i>	H542
Influence of site of regional ischemia on LV cavity shape change in dogs <i>P. Marino, D. Kass, J. Lima, W. L. Maughan, W. Graves, and J. L. Weiss</i>	H547
Cardiovascular performance with <i>E. coli</i> challenges in a canine model of human sepsis <i>C. Natanson, R. L. Danner, M. P. Fink, T. J. MacVittie, R. I. Walker, J. J. Conklin, and J. E. Parrillo</i>	H558
Myocardial serotonin exchange: negligible uptake by capillary endothelium <i>T. C. Moffett, I. S. Chan, and J. B. Bassingthwaighe</i>	H570
Measurement of hydroxy-conjugated dienes after ischemia-reperfusion in canine skeletal muscle <i>T. Lindsay, P. M. Walker, D. A. G. Mickle, and A. D. Romaschin</i>	H578
Relationship between endocardial activation of SA valve and right atrium in domestic fowl <i>B. D. Feige and J. M. Goldberg</i>	H584
Response of hypertensive rats to acute and chronic conditions of static exercise <i>C. M. Tipton, S. McMahon, E. M. Youmans, J. M. Overton, J. G. Edwards, E. B. Pepin, and C. Lauber</i>	H592
Cardiac energetics and performance of exercised and food-restricted rats during aging <i>J. W. Starnes and W. L. Rumsey</i>	H599

---

#### MODELING METHODOLOGY FORUM

A model of the systemic arterial bed showing ventricular-systemic arterial coupling <i>M. B. McIlroy and R. C. Targett</i>	H609
---	------

---

#### ANNOUNCEMENTS

H617

No. 4. APRIL 1988

#### EDITORIAL

Measuring right ventricular volumes <i>D. A. Kass</i>	H619
--	------

---

Rapid in vivo determinations of instantaneous right ventricular pressure and volume in dogs <i>F. Schwiep, S. S. Cassidy, M. Ramanathan, and R. L. Johnson, Jr.</i>	H622
$\beta$ -Adrenergic control of resistance in individual vessels in rabbit tenuissimus muscle <i>P. Borgström, L. Lindbom, K.-E. Arfors, and M. Intaglietta</i>	H631
Quantification of arteriolar density and embolization by microspheres in rat myocardium <i>P. A. Wieringa, H. G. Stassen, J. D. Laird, and J. A. E. Spaan</i>	H636
Integration of heart rate and sympathetic neural effects on AV conduction <i>J. M. Loeb and J. M. deTarnowsky</i>	H651

Effect of afterload resistance on end-systolic pressure-thickness relationship T. Aversano, W. L. Maughan, K. Sunagawa, and L. C. Becker	H658
End-systolic pressure-volume relationships in dogs during ventilation with PEEP A. J. Crottogini, P. Willshaw, J. G. Barra, G. J. Breitbart, and R. H. Pichel	H664
Adrenergic and prostanoid mechanisms in control of cerebral blood flow in hypotensive newborn pigs W. M. Armstead, C. W. Leffler, D. W. Busija, D. G. Beasley, and R. Mirro	H671
Dissociation of hypoxia-induced calcium gain and rise in resting tension in isolated rat hearts W. G. Nayler, J. S. Elz, and D. J. Buckley	H678
Depressor neurons in rabbit caudal medulla act via GABA receptors in rostral medulla W. W. Blessing	H686
Central blood volume and blood pressure in conscious primates K. G. Cornish, J. P. Gilmore, and T. McCulloch	H693
Vascular injury in dogs during ischemia-reperfusion: improvement with ATP-MgCl <sub>2</sub> pretreatment R. J. Korthuis, M. B. Grisham, B. J. Zimmerman, D. N. Granger, and A. E. Taylor	H702
Vasoconstriction is amplified by autoregulation during vasoconstrictor-induced hypertension G. A. Meininger and J. P. Trzeciakowski	H709
Effect of fluorocarbon-for-blood exchange on regional cerebral blood flow in rats P. A. Lee, A. L. Sylvia, and C. A. Piantadosi	H719
Effect of experimental heart failure on peripheral sympathetic vasoconstriction J. R. Wilson, W. Matthai, V. Lanoce, M. Frey, and N. Ferraro	H727
Norepinephrine effects on fetal cardiovascular and endocrine systems C. Y. Cheung and R. A. Brace	H734
Peripheral chemoreceptor control of neurohypophyseal blood flow D. F. Hanley, D. A. Wilson, M. A. Feldman, and R. J. Traystman	H742
Effect of nitroglycerin on myocardial collateral conductance in awake dogs S. Brazzamano, J. C. Rembert, and J. C. Greenfield, Jr.	H751
Electrophysiological evidence for $\alpha_1$ - and $\alpha_2$ -adrenoceptors in solitary tract nucleus P. D. Feldman and H. C. Moises	H756
Role of platelets in maintenance of pulmonary vascular permeability to protein S. K. Lo, K. E. Burhop, J. E. Kaplan, and A. B. Malik	H763
Microvascular control of capillary pressure during increases in local arterial and venous pressure M. J. Davis	H772
Intra- and extracellular markers in interstitial transudate of perfused rat hearts W. Wienen and H. Kammermeier	H785

---

#### SPECIAL COMMUNICATIONS

On-line measurement of aortic valve ring deformation during the cardiac cycle R. J. van Renterghem, T. Arts, A. A. van Steenhoven, and R. S. Reneman	H795
A simple method for measurement of left ventricular septal-lateral dimension G. L. Freeman, D. Watkins, and W. C. Little	H801
A new fabrication technique for directly coupled transmural cardiac electrodes F. X. Witkowski and P. A. Penkoske	H804

---

#### RAPID COMMUNICATIONS

Long-term hemodynamic actions of atrial natriuretic factor (99-126) in conscious sheep D. G. Parkes, J. P. Coghlan, J. G. McDougall, and B. A. Scoggins	H811
--	------

No. 5 MAY 1988

Effects of asynchrony on myocardial relaxation at rest and during exercise in conscious dogs G. R. Heyndrickx, P. J. Vantrimpont, M. F. Rousseau, and H. Pouleur	H817
--	------

Leukocyte depletion attenuates vascular injury in postischemic skeletal muscle <i>R. J. Korthuis, M. B. Grisham, and D. N. Granger</i>	H823
Vasomotor activity of diadenosine triphosphate and diadenosine tetraphosphate in isolated arteries <i>R. Busse, A. Ogilvie, and U. Pohl</i>	H828
Cardiopulmonary responses to continuous administration of endotoxin <i>D. L. Traber, H. Redl, G. Schlag, D. N. Herndon, R. Kimura, T. Prien, and L. D. Traber</i>	H833
Myoplasmic $Ca^{2+}$ -force relationship studied with fura-2 during stimulation of rat aortic smooth muscle <i>G. Bruschi, M. E. Bruschi, G. Regolisti, and A. Borghetti</i>	H840
Dobutamine modifies myocardial infarct size through supply-demand balance <i>T. Miura, S. Yoshida, O. Iimura, and J. M. Downey</i>	H855
Reperfusion-induced arrhythmias: mechanisms of protection by glucose and mannitol <i>M. Bernier and D. J. Hearse</i>	H862
Endothelium inhibits norepinephrine release from adrenergic nerves of rabbit carotid artery <i>R. A. Cohen and R. M. Weisbrod</i>	H871
Blood pressure increases after injection of neuropeptide Y into posterior hypothalamic nucleus <i>J. R. Martin, M. C. Beinfeld, and T. C. Westfall</i>	H879
Serotonergic vasoconstriction in human fingers during reflex sympathetic response to cooling <i>J. D. Coffman and R. A. Cohen</i>	H889
Integrated regional work equals total left ventricular work in regionally ischemic canine heart <i>Y. Goto, Y. Igarashi, Y. Yasumura, T. Nozawa, S. Futaki, K. Hiramori, and H. Suga</i>	H894
Baroreflex modulation by cardiopulmonary receptors during chronic sodium depletion <i>S. F. Echtenkamp and A. C. Anderson</i>	H905
Effect of pathological blood histamine levels on canine coronary vascular permeability <i>C. F. Pilati and M. B. Maron</i>	H912
Response of arteriolar network of skeletal muscle to sympathetic nerve stimulation <i>M. A. Boegehold and P. C. Johnson</i>	H919
Periarteriolar and tissue $PO_2$ during sympathetic escape in skeletal muscle <i>M. A. Boegehold and P. C. Johnson</i>	H929
Two components of coupling calcium in single ventricular cell of rabbits and rats <i>T. L. Rich, G. A. Langer, and M. G. Klassen</i>	H937
Cardiovascular and hormonal response to hemorrhage in conscious rats <i>G. Fejes-Tóth, T. Brinck-Johnsen, and A. Náray-Fejes-Tóth</i>	H947
Evidence for lack of importance of oxygen free radicals in <i>Escherichia coli</i> endotoxemia in dogs <i>M. J. Nouvrot, M. H. Laughlin, and H. R. Adams</i>	H954
Area postrema and cardiovascular regulation in rats <i>K. M. Skoog and M. L. Mangiapane</i>	H963
Adenosine potentiates insulin-stimulated myocardial glucose uptake in vivo <i>W. R. Law and R. M. Raymond</i>	H970
Autonomic nervous system pulmonary vasoregulation after hypoperfusion in conscious dogs <i>P. W. Clougherty, D. P. Nyhan, B. B. Chen, H. M. Goll, and P. A. Murray</i>	H976
Postsynaptic adrenoceptor-mediated vasoconstriction in coronary and femoral vascular beds <i>D. G. Chen, X.-Z. Dai, and R. J. Bache</i>	H984
Release of norepinephrine from the paraventricular hypothalamic nucleus of hypertensive rats <i>J. M. Qualy and T. C. Westfall</i>	H993

---

**SPECIAL COMMUNICATIONS**

Piezoelectric polymer curvature sensor for measurement of regional curvature  
radius of LV wall

*K. Tsujioka, Y. Ogasawara, K. Mito, O. Hiramatsu, Y. Wada, M. Goto,  
S. Matsuoka, M. Kagiya, and F. Kajiyama*

H1010

Endotoxemia and neutrophil activation in vivo

*M. B. Grisham, J. Everse, and H. F. Janssen*

H1017

**No. 6. JUNE 1988**

Histamine dilates pial arterioles of newborn pigs through prostanoid production

*R. Mirro, D. W. Busija, W. M. Armstead, and C. W. Leffler*

H1023

Vasorelaxation and vascular binding sites for atrial natriuretic peptide in pregnant rats

*J. St-Louis, A. Parent, J. Gutkowska, J. Genest, and E. L. Schiffrin*

H1027

Volume overload hypertrophy in a closed-chest model of mitral regurgitation

*J. P. Kleaveland, W. G. Kussmaul, T. Vinciguerra, R. Ditors, and B. A. Carabello*

H1034

Contribution of kininase II to the waning of vascular actions of bradykinin

*S. W. Adamski and G. J. Grega*

H1042

Optimal matching between canine left ventricle and afterload

*E. S. P. Myhre, A. Johansen, and H. Piene*

H1051

Wall shear rate in arterioles in vivo: least estimates from platelet velocity profiles

*G. J. Tangelander, D. W. Slaaf, T. Arts, and R. S. Reneman*

H1059

Functional consequences of acute anterior vs. posterior wall ischemia  
in canine left ventricles

*B. D. Hoit and W. Y. W. Lew*

H1065

Pulsatile vs. mean component of baroreflex compensation  
for posthemorrhage hypotension

*T. Yamazaki, M. J. Brunner, and K. Sagawa*

H1074

Functional and anatomical recovery of endothelium after denudation of coronary artery

*Y. Hayashi, H. Tomoike, K. Nagasawa, A. Yamada, H. Nishijima,  
H. Adachi, and M. Nakamura*

H1081

Different ATP-catabolism in reperfused adult and newborn rat hearts

*P. W. Achterberg, A. S. Nieuwkoop, B. Schouten, and J. W. de Jong*

H1091

Right ventricular hypertrophy long after reversal of severe pressure overload in cats

*T. Wisenbaugh and W. N. O'Connor*

H1099

Albumin improves stability and longevity of perfluorochemical-perfused hearts

*L. D. Segel and J. L. Ensunsa*

H1105

Identifiability of left ventricular end-systolic pressure-volume relationships

*L. P. van der Linden, E. T. van der Velde, A. V. G. Bruschke, and J. Baan*

H1113

Interstitial transudate concentration of adenosine and inosine in rat and  
guinea pig hearts

*U. K. M. Decking, E. Juengling, and H. Kammermeier*

H1125

Mechanisms of reoxygenation-induced calcium overload in cultured chick  
embryo heart cells

*J. G. Murphy, T. W. Smith, and J. D. Marsh*

H1133

Nonadrenergic and noncholinergic excitatory neurotransmission  
in rat intrapulmonary artery

*T. Inoue and M. S. Kannan*

H1142

Distribution of vascular resistance in terminal arteriolar networks of cat sartorius muscle

*A. S. Popel, A. Liu, B. Dawant, A. Koller, and P. C. Johnson*

H1149

Basis for tetrodotoxin and lidocaine effects on action potentials  
in dog ventricular myocytes

*J. A. Wasserstrom and J. J. Salata*

H1157

Studies on sequestration of neuraminidase-treated red blood cells <i>S. Simchon, K.-M. Jan, and S. Chien</i>	H1167
Role of median preoptic area in vasopressin-mediated bradycardia <i>K. P. Patel and P. G. Schmid</i>	H1172
Intracellular $Po_2$ in long axis of individual fibers in working dog gracilis muscle <i>T. E. J. Gayeski and C. R. Honig</i>	H1179

---

#### SPECIAL COMMUNICATIONS

Perfused rat intestine for study of norepinephrine release <i>A. P. Shepherd, G. L. Riedel, and T. K. Keeton</i>	H1187
Effects of intermittent hypoxia on structural vascular adaptation in chick embryos <i>T. H. Adair, J.-P. Montani, and A. C. Guyton</i>	H1194

---

#### RAPID COMMUNICATIONS

$\alpha$ -Subunit of $G_k$ activates atrial $K^+$ channels of chick, rat, and guinea pig <i>G. E. Kirsch, A. Yatani, J. Codina, L. Birnbaumer, and A. M. Brown</i>	H1200
Inotropic agents modulate gap junctional conductance between cardiac myocytes <i>J. M. Burt and D. C. Spray</i>	H1206
Venular endothelial cells from bovine heart <i>M. E. Schelling, C. J. Meininger, J. R. Hawker, Jr., and H. J. Granger</i>	H1211
Role of platelet-activating factor in primary hemostasis <i>M. Livio, G. Vigano, M. Morigli, A. Ubiali, M. Galbusera, and G. Remuzzi</i>	H1218

---

#### LETTERS TO THE EDITOR

Activation of atrial muscarinic-gated $K^+$ channels by $\beta\gamma$ -subunits of G proteins <i>D. Clapham and E. Neer</i>	H1224
--	-------

---

<i>Subject Index to Volume 23</i>	H1225
<i>Author Index to Volume 23</i>	H1234

#### CORRIGENDA

*Volume 254, January 1988*  
*Volume 23, January 1988*

*Page H191:* B. J. Pardini, D. D. Lund, Robert D. Wurster, and R. H. Anderson. "An electronic, negative feedback device to control arterial pressure." The received dates should read: "Received 5 June 1987; accepted in final form 27 August 1987."

*Volume 254, February 1988*  
*Volume 23, February 1988*

*Page H339:* L. Kuo and R. N. Pittman. "Effect of hemodilution on oxygen transport in arteriolar networks of hamster striated muscle." Reference 22 should appear as follows.

22. PITTMAN, R. N., AND B. R. DULING. Measurement of percent oxyhemoglobin in the microvasculature. *J. Appl. Physiol.* 38: 321-327, 1975.

(Continued on next page)

